12:40:36 1 IN THE UNITED STATES DISTRICT COURT

12:40:36 2 MIDDLE DISTRICT OF TENNESSEE, COOKEVILLE DIVISION

12:40:36 3 ---

12:40:36 4 ILIGHT TECHNOLOGIES,)

12:40:36 5 Plaintiff,)

12:40:36 6)

12:40:36 7 v.) CASE NO. 2:06-0025

12:40:36 8)

12:40:36 9 FALLON LUMINOUS PRODUCTS,)

12:40:36 10 Defendant.)

12:40:36 11 ---

12:40:36 12 TRANSCRIPT OF PROCEEDINGS

12:40:36 13 VOLUME IV

12:40:36 14 ---

12:40:36 15 DATE: APRIL 23, 2009

12:40:36 16 TIME: 1:00 P.M.

12:40:36 17 BEFORE: HONORABLE WILLIAM J. HAYNES, JR.

12:40:36 18 And a Jury

12:40:36 19 ---

12:40:36 20

12:40:36 21

12:40:36 22

COURT REPORTER: PEGGY G. TURNER
12:40:36 23 OFFICIAL COURT REPORTER
801 BROADWAY, ROOM A-837
12:40:36 24 NASHVILLE, TENNESSEE 37203
PHONE: (615)726-4893
12:40:36 25 Peggy_Turner@tnmd.uscourts.gov

A P P E A R A N C E S:

For the Plaintiff: Timothy J. Vezeau
Stephen Price
Melissa Hunter
William Ferrell
Jon Scruton

For the Defendant: Mark Kittredge
Jonathan Rose
Samuel Lipshie
Douglas Sawyer
Brandy McMillion

12:40:36 1 W I T N E S S E S:

12:40:36 2 VICTOR ROBERTS

3 Cross Examination by Mr. Kittredge Page 354

12:40:36 4

12:40:36 5 WALTER BRATIC

12:40:36 6 Statement by Mr. Bratic Page 427

12:40:36 7

12:40:36 8

12:40:36 9

12:40:36 10

12:40:36 11

12:40:36 12

12:40:36 13

12:40:36 14

12:40:36 15

12:40:36 16

12:40:36 17

12:40:36 18

12:40:36 19

12:40:36 20

12:40:36 21

12:40:36 22

12:40:36 23

12:40:36 24

12:40:36 25

12:40:36 1 P R O C E E D I N G S

12:54:26 2 THE COURT: Are there any preliminary matters before
3 we get started, either side?

12:54:32 4 MR. VEZEAU: Yes, Your Honor. A couple of points.

12:54:32 5 THE COURT: All right.

12:54:34 6 MS. HUNTER: Yes, Your Honor. We have some video
7 depositions that we plan on presenting after the cross
8 examination -- or after Mr. -- or Dr. Roberts is finished as a
9 witness. And there are some pending objections to those
10 depositions. And we just wanted to let the Court know so that
11 we can take it up either now or after Dr. Roberts is finished.

12:54:57 12 THE COURT: Well, depending on how the Court rules,
13 are you all going to be able to adjust the video depositions?
14 Can you all mechanically adjust that?

12:55:09 15 MS. HUNTER: As quickly as we can, Your Honor.

12:55:11 16 THE COURT: Well, let's take them up now in the event
17 that that takes time. You all can have a seat.

12:55:43 18 Which deposition and which objection? Which
19 deposition? Does anybody have a copy of the deposition I can
20 -- Does anybody have a copy of the deposition? Has it been
21 marked as an --

12:56:06 22 MS. HUNTER: We do, Your Honor. First, Your Honor, we
23 have the video deposition of Eric Eriksson. And I believe we
24 have resolved all of the objections except for one by the
25 defendants.

12:56:23 MR. SAWYER: Yes, Your Honor. The designation that we have objected to is --

12:56:27 THE COURT: What page and line?

12:56:30 MS. HUNTER: It is --

12:56:36 MR. SAWYER: It is Page -- I believe it is Page 59, 17 through 23. And also Page 60, 11 to 17; is that correct?

12:56:45 MS. HUNTER: That's what I have.

12:56:48 THE COURT: Page 59?

12:56:59 MR. SAWYER: 59, Line 17, Your Honor. Through 23. And then --

12:57:02 THE COURT: Hold on. 59, 17 and 23?

12:57:04 MR. SAWYER: Yes, sir.

12:57:08 THE COURT: Well, the way the question is phrased, he's guessing.

12:57:12 MS. HUNTER: Pardon me?

12:57:15 THE COURT: The way the question is phrased, the witness was asked to guess, and that's usually objectionable.

12:57:23 MR. SAWYER: Correct, Your Honor. I mean, that's why we have objected to it.

12:57:27 THE COURT: I got that part. I was giving her a chance to respond.

12:57:32 MS. HUNTER: Well, Your Honor, he's telling his recollection as --

12:57:35 THE COURT: No, ma'am, the way you asked the question. Sustained. What about 60?

12:57:47 MR. SAWYER: 60 is lines 11 through 17, Your Honor. I'm sorry. You know what, Your Honor? I apologize. Actually, I think I've given you the wrong deposition cite. It is on Page 60. It's 4 through 10 on 60. I apologize, Your Honor.

12:58:19 THE COURT: What is the basis for the objection?

12:58:23 MR. SAWYER: The basis is, again, he's guessing, Your Honor, and --

12:58:26 THE COURT: No, you said, did you show the prototype to anyone at the trade show? I know I showed it, but I don't know who I showed it to.

12:58:37 MR. SAWYER: You're right, Your Honor. And I believe some of the deposition testimony is, he is saying he showed it to a Fallon representative.

12:58:52 THE COURT: Well, I don't get that. I mean, there may be more context to this. On 58 he refers to visiting Fallon at their trade show in Vegas and once spoke to one of their engineers.

12:59:06 MS. HUNTER: Your Honor, if I may.

12:59:06 THE COURT: Yes, ma'am.

12:59:10 MS. HUNTER: I can provide some context. What this is, is my understanding, it is his recollection of a trade show in 2002 where he approached a Fallon trade booth and had a conversation with somebody at the Fallon trade booth. It was a senior engineer. He was unable to identify the person's

name. And so my understanding is the defendants have lodged a hearsay objection against this portion of the deposition.

12:59:40 THE COURT: I will sustain the objection to 17 through -- what was your objection on the 59 in the -- 17 to what?

12:59:55 MR. SAWYER: Yeah, it's actually your -- I apologize, Your Honor. If we could start over. I believe the first objection we should deal with in this transcript is on Page 58, 2 through 12.

13:00:06 Is that correct?

13:00:08 MS. HUNTER: That's right.

13:00:11 MR. SAWYER: Okay. And maybe this will -- this will put it in context for Your Honor. And if you -- if you --

13:00:42 THE COURT: I think 17 through 18 ought to be stricken, on Page 59. I think the other part, other objection, should be overruled.

13:00:55 MR. SAWYER: Okay.

13:00:57 THE COURT: Any other objection on this -- on the Eriksson deposition?

13:01:02 MR. LIPSHIE: Just if you -- I'm not sure you have addressed 58 -- on Page 58, two through 12 in which Mr. Eriksson is asked: Do you ever recall visiting Fallon?

13:01:16 He says: It seems to me I visited Fallon years later, further north of Chicago, close to Milwaukee. I believe I did on at least one occasion. Then the question goes on.

13:01:26 THE COURT: Hold on. I recall another visit with

Fallon. Go ahead. If you want to me to -- want me to be -- it seems that he is -- that's a pretty clear recollection to me.

13:01:43 MR. SAWYER: Your Honor, the reason we object to it is because it's hearsay. And I think he's quoting a Fallon representative, or is trying to quote a Fallon representative. And he says, can this ever been made out of LEDs. And he looked at me, and he said no, it can't be done.

13:02:02 MS. HUNTER: And your Honor, what we would say is that it's not hearsay because it's not offered for the truth of the matter asserted. Obviously, both parties in this case are making --

13:02:11 THE COURT: For what purpose is it being admitted?

13:02:14 MS. HUNTER: It's being offered because it was said.

13:02:18 THE COURT: If it's being offered for what is being said, it's being offered for the truth.

13:02:23 MS. HUNTER: Well, and even if it is hearsay, I believe it is a party admission. This is clearly a Fallon representative who is a senior engineer at Fallon, stationed at the trade show booth.

13:02:38 THE COURT: Well, under 801(d), isn't a statement of an agent in the scope of the duties admissible?

13:02:45 MR. SAWYER: I think, Your Honor, the recollection isn't clear. We don't know who the person is. He is sort of saying it's his best guess it was a senior Fallon engineer.

13:02:58 THE COURT: No, his best guess was his reference to something else. This is recalling a distinct recollection.

13:03:06 MR. SAWYER: Well It's a distinct recollection talking to someone at Fallon, but I'm not sure that qualifies that person as an agent for the company. Even if it -- even if we assume that it was someone from Fallon.

13:03:21 THE COURT: Well, he's talking about someone at the Fallon booth, isn't he? Says it was one of their senior engineers. He doesn't mention it, but if it's a senior engineer and it was around the year of 2001 and it was at a trade show, it seems to me you would be able to reasonably trace and identify who that might be.

13:03:55 MR. SAWYER: Your Honor, I believe that the vague recollection he has of the location and the time --

13:04:01 THE COURT: Well, I don't see the vagueness in his recollection as to the place and time. The reference to that appears to be pretty clear. It refers to his recollection. The bottom -- on Page 57: Do you ever recall visiting Fallon? And he gives his recollection. And he doesn't mention the name, but he identifies the event, the person's position, and the time frame. And collectively, it seems to me that puts you in a position to identify who that may -- likely was, or, in fact, was.

13:04:51 MR. SAWYER: Your Honor, I just -- I think -- we don't think they have properly identified Fallon. We think -- at

least a Fallon agent.

13:05:02 THE COURT: Well, it says it was one of their senior engineers. And it's at a Vegas trade show in about 2001, looking at the entire context.

13:05:14 MR. SAWYER: Well, I'm not sure a senior engineer would be --

13:05:19 THE COURT: Well, I take it you would have records to reflect who went to the Las Vegas show in 2001 as your representative.

13:05:29 MR. SAWYER: Your Honor, I don't know if we have records that go back to 2001 and who went to the trade show.

13:05:34 THE COURT: That's not that far back.

13:05:36 MR. SAWYER: I realize that, Your Honor, but I don't have that certainly at my fingertips.

13:05:41 THE COURT: No, I mean during the course of discovery, is what I'm talking about. This is a discovery deposition. It seems to me you would have been in a position to run that down.

13:05:49 MR. SAWYER: Well, I think one of the other problems with this is obviously it's just a deposition designation, so we're not going to have really the ability to --

13:05:58 THE COURT: Well, that's what I was getting at. I think you would have had the ability during discovery to ascertain who that was, whether any conversation like that took place. And it's fairly specific in its description.

Objection overruled. Any others?

13:06:16 MS. HUNTER: Yes, Your Honor. For the deposition of Douglas Bagin, we have a pending motion in limine regarding the post complaint patent opinions.

13:06:29 THE COURT: Ma'am, if you would focus on what the page and line is on the deposition. Because the depositions you all just discussed didn't cite Page 59.

13:07:01 Now, what's the page and line on Fallon? This objection on -- well, this is defendant's objection -- plaintiff's deposition. All right. I'm on Page 53 of Bagin?

13:07:24 MS. HUNTER: Yes, Your Honor.

13:07:28 THE COURT: Okay. What --

13:07:32 MS. HUNTER: This particular excerpt, it runs from Page 53 through approximately Page 57, with some lawyer colloquy excluded. But this pertains to patent opinions that were obtained after the complaint in this case was filed. And we submitted a motion in limine that discusses --

13:07:49 THE COURT: Who is Bagin?

13:07:51 MS. HUNTER: Bagin is --

13:07:52 THE COURT: For clarity of the record.

13:07:56 MR. SAWYER: Bagin is a senior Fallon employee.

13:07:59 THE COURT: Okay.

13:08:03 MS. HUNTER: And I believe he was also the 30(b)(6) corporate representative for the patent opinions.

13:08:23 MR. SAWYER: He was, Your Honor.

13:08:25 THE COURT: What is the basis for the objection?

13:08:29 MS. HUNTER: Your Honor, we would submit that opinions that are obtained after a complaint has been filed in an action are obtained too late to be exculpatory. We have submitted federal circuit precedent. The opinions appear to be obtained for purposes of a defense of willfulness instead of to truly determine whether the charges by iLight have any merit.

13:09:09 THE COURT: I don't recall, is there a reliance upon advice of counsel defense?

13:09:17 MR. SAWYER: There is, Your Honor.

13:09:20 MS. HUNTER: And Your Honor, we're not trying to prevent Fallon from relying on the advice of counsel. They obtained advice of counsel in April of 2005, shortly after iLight sent them the first patent notification letter. ILight sent a second patent notification letter in December and then filed suit in March of 2006. And these patent opinions were obtained after the complaint was filed and after service of the complaint was made upon Fallon.

13:09:56 THE COURT: Well, it's hard for me to have a --

13:10:01 He makes a reference on Page 54 to saying the opinion in June of 2005, which is before the lawsuit.

13:10:07 MS. HUNTER: Yes, Your Honor. I believe he does correct that further down on the page.

13:10:15 MR. SAWYER: Your Honor, if I might just respond to

the argument that they are advancing that the patent opinions aren't relevant.

13:10:24 THE COURT: Let me ask you a more practical question.

13:10:24 MR. SAWYER: Sure.

13:10:27 THE COURT: When is this person going to testify?

13:10:30 MS. HUNTER: By video deposition this afternoon.

13:10:33 THE COURT: Oh.

13:10:37 MS. HUNTER: Or we could also postpone the video deposition until tomorrow, depending on the progress of today. But it is fully briefed. And the motion in limine -- and Fallon has had an opportunity to respond, and they have done so.

13:10:52 MR. SAWYER: Your Honor, if I might just give a couple of highlights. The standard here is totality of the circumstances for the jury. This is clearly part of totality of the circumstances. They are alleging willful infringement currently. And any opinion that we have had in the past goes to current willfulness. In all of the cases that they cited, Your Honor, not a single one of them exclude the opinions.

13:11:18 THE COURT: Well, it's really, from my perspective, a factual question. Apparently Exhibit 553 is dated March 30, 2006, which is after the filing of the complaint.

13:11:29 MS. HUNTER: Yes, Your Honor.

13:11:31 MR. SAWYER: That's correct, Your Honor. But like I indicated, it's a totality of the circumstances for the jury

about how reasonable --

13:11:41 THE COURT: I mean, the ones before that -- it seems to me, reading this section, the only objection that she is really making is to Exhibit 553; is that right?

13:11:50 MS. HUNTER: Yes, Your Honor. We would like to exclude any testimony or offers of proof regarding the two patent opinions that were obtained after the complaint was filed. Your Honor, we had a willfulness allegation included in the complaint that was filed on March 24, 2006 that was served on Fallon on March 27, 2006. And as a matter of fundamental fairness as well as resting on federal circuit precedent, these patent opinions were rendered too late to be exculpatory.

13:12:22 MR. SAWYER: I think that's misstating federal circuit law, Your Honor.

13:12:25 THE COURT: The more important question is the circumstances of this case. In this case he doesn't even recall Fallon receiving it, he doesn't know -- he didn't request it, he doesn't know why it was prepared.

13:12:43 MR. SAWYER: Your Honor, I believe --

13:12:47 THE COURT: I don't think this witness would be the appropriate witness. Somebody who actually requested it and received it, would be the appropriate witness for which this exhibit would be admitted.

13:12:57 MR. SAWYER: Your Honor, there have been a number of

designations in this transcript, and all of the objections, I believe all of the objections, go to this particular issue. And so if we wanted to, we could go through sort of all of the designations, I think. There were some miscommunications during the deposition testimony.

13:13:17 THE COURT: Well, maybe I'm looking at the wrong document. I only see notice of objection, docket entry number 170. And the only objection filed by the defendant was on Page 80 of Fallon. As to what's on Page 55 in reference to the Exhibit 553, I would sustain the objection as to that one based on what is described here. That doesn't mean the exhibit might not -- if there is somebody else who identifies it and says I relied on this, then that may be probative. But this isn't even probative.

13:13:58 MR. SAWYER: Your Honor, I believe some of the further testimony in that -- in this deposition --

13:14:05 THE COURT: Well, that's why I asked for a page. The only objection, it seems to me, would be to Page 55 and that one exhibit. She said yes. So I would think that the reference to Exhibit 553 would be a sustainable objection.

13:14:26 MS. HUNTER: And Your Honor, also Exhibit 554.

13:14:30 THE COURT: Well, just give me the page number, ma'am. We're at 55. What's the next page?

13:14:36 MS. HUNTER: Also on Page 56, Exhibit 554, it was an opinion obtained on the same day.

13:14:40 THE COURT: First he says he has seen it. What's the date of 554?

13:14:46 MS. HUNTER: It was obtained on March 30, 2006. And it just pertains to the '262 Patent. The 553 pertains to the '238 Patent.

13:15:00 THE COURT: Well, again, he says -- he doesn't recall -- well, he says he believes he saw it.

13:15:06 MR. SAWYER: Your Honor, this goes to somewhat, I think, some of the confusion I think that Mr. Bagin had. The two opinions are just for the two different patents, and they look very similar. As you see, he is not quite sure which one he has seen, or maybe he has seen them both.

13:15:22 THE COURT: Well, he says at line 12:

13:15:23 Do you know whether or not anyone at Fallon discussed the contents of 54 with Fallon's opinion counsel?

13:15:28 No.

13:15:35 And then he talks about making an assumption.

13:15:37 MR. SAWYER: Your Honor, again, --

13:15:41 THE COURT: And aside from the merit -- aside from the law as a factual matter, I don't know if he can testify about some -- as reliance on counsel, when he doesn't even know whether anybody even discussed it with counsel. So factually he isn't the person who could testify, I relied on this.

13:16:12 MR. SAWYER: Your Honor, if you look at Page 54 -- and actually, 53 going into 54, Mr. Vezeau says:

13:16:23 I have placed before you Exhibit 553. And he asks if -- have you ever seen it before. And he says, yes, I've seen that opinion.

13:16:34 MS. HUNTER: Part of the problem is we don't know when he received the opinion. We have no record of counsel ever submitting any sort of cover letter or e-mail. There is no record of correspondence with patent opinion counsel as to these opinions. We have no idea when reliance started, if it did.

13:16:52 MR. SAWYER: And, Your Honor, I believe --

13:16:54 THE COURT: He goes on and says he doesn't know if anyone at Fallon requested it. It doesn't seem that -- even later adequately identifies his ties to this document and said, I relied on this. My lawyer told me this, and I relied on this. And this doesn't reflect that kind of knowledge. He just says he -- he didn't know exactly why it was prepared.

13:17:31 MR. SAWYER: And Your Honor, like I said, there are a number of designations in this. If you give me just a moment to find where there is additional discussion of it.

13:17:42 THE COURT: Well, I'll tell you what. I hate to keep the jury sitting back there. I've already gotten a note from one concerned about the time. I've given guidance on how I'm analyzing this threshold matter of whether the person really has the knowledge to identify this document as something they relied upon. And so unless there is testimony as to that, it

would be -- your objection would be sustainable on that basis. We'll take up the other particular pages later.

13:18:16 MR. SAWYER: So I can possibly isolate that information for you and present it to you?

13:18:21 THE COURT: Well, 553 and 554 ought to go out. Now, if there are other designations, I will have to just look at those pages at maybe the afternoon break.

13:18:29 MS. HUNTER: Your Honor, we can offer this video tomorrow morning, if that would be acceptable.

13:18:35 THE COURT: Well, it's up to you all when you put your proof on, but I'm just telling you, I don't want to hold this jury out any longer.

13:18:41 MS. HUNTER: I understand.

13:18:44 THE COURT: We'll take the rest of this up later.

13:18:48 You can bring the jury in, Mr. Marshal.

13:19:08 If the witness will come back around.

13:19:08 (Jury in.)

13:19:35 THE COURT: Good afternoon, ladies and gentlemen of the jury. One of the jurors left a question about leaving. We stayed late yesterday evening for the sole reason that we weren't going to have access to the court in the morning. But we will be getting out of here at 5:00, or shortly after 5:00, so hopefully that won't pose a concern to you.

13:20:06 You may cross examine.

13:20:06 CROSS EXAMINATION

13:20:11 BY MR. KITTREDGE:

13:20:21 Q. Good afternoon, Dr. Roberts. My name is Mark Kittredge. As I'm sure you understand, I represent Fallon and its products corporation. We listened to your testimony yesterday, and obviously you put an awful lot of work into that, and we want to thank you for your efforts.

13:20:39 Obviously, you are a man of science and a scientist; correct?

13:20:42 A. I'm an engineer with a background in science, yes.

13:20:49 Q. Okay. I think of engineers as scientists. That's because I used to be one. And you are testifying as an engineering or a science expert in this case?

13:20:56 A. That is correct.

13:20:59 Q. And I just want to make sure that we agree on a couple of basic principles as far as scientific method and how scientific theories work. You would agree, wouldn't you, that scientific theory, one of the ways you test its merits is that it should provide predictable results in different situations.

13:21:20 A. Well, that's true.

13:21:24 Q. Let me give you an example, because I think it will make it easy for you, because I know you are afraid I am saying something you might not agree with, I can tell by your expression, sir.

13:21:38 Let's talk about the law of gravity as an example.

And we'll call it the theory of gravity so there is no confusion about -- we've got the law in the courtroom and science. The theory of gravity, the facts are, I weigh less on the moon than I do on earth; correct?

13:21:46 A. Yes.

13:21:49 Q. Under the theory of gravity, you can explain that. That result is perfectly predictable?

13:21:52 A. Yes.

13:21:54 Q. And that's one of the reasons we know that that theory is a good theory?

13:21:56 A. Yes.

13:22:00 Q. And you testified yesterday about your opinions on how --

13:22:07 A. Can we back up a second?

13:22:07 Q. Sure.

13:22:10 A. The word perfectly is maybe too strong. The law of gravity has its variations with minor effects. So it's predictable. Perfectly may be a bit too strong.

13:22:21 Q. Okay.

13:22:21 A. Okay.

13:22:23 Q. But it does provide -- it's a good theory because it provides predict--

13:22:23 A. Yes.

13:22:26 Q. We have to be careful not to talk over each other. And I apologize if I was talking over you. But it's a

good theory of science because you can get good predictable results in different situations?

13:22:36 A. Yes.

13:22:39 Q. And a lot of testimony yesterday about your opinions on why and how you believe Fallon's products infringed the patents-in-suit, that was based on your analysis as a scientist and an engineer?

13:22:51 A. That's correct.

13:22:55 Q. And we should be able to test your theories of infringement, the merits of them, by seeing if they apply and provide consistent and predictable results in different situations; correct?

13:23:07 A. That's correct.

13:23:13 Q. Now, you talked a lot yesterday about a lot of science that was very interesting, but even though I used to be an engineer, I'm really not --

13:23:23 THE COURT: Well, you don't get to testify. You get to ask questions.

13:23:25 MR. KITTREDGE: I apologize, Your Honor.

13:23:34 Can we put up Exhibit TX 29 H. And can we have Plaintiff's Exhibit 29 H? Can he have that in front of him? It was one of the exhibits he was looking at yesterday. Actually, if this is good enough for you, Dr. Roberts, we can talk about this.

13:23:49 A. That's fine.

13:23:51 Q. If I understood your testimony correctly yesterday, I just -- I want to make sure I get it correct. Your Figure 12 from your expert report, Exhibit 29 H -- that depicts an ideal optical waveguide?

13:24:08 A. It depicts a conventional ideal optical waveguide. One version of an optical waveguide.

13:24:16 Q. Okay. And what we see is, if I understand correctly, the light is coming in from the left, and it stays within the waveguide until it exits on the right?

13:24:26 A. Actually, that's a piece of the waveguide. Those are not the input and output ports, because there would be refraction at those ports. That's a section of the longer waveguide showing a fully trapped wave traveling down the waveguide.

13:24:40 Q. Okay. So within this portion of the waveguide -- thanks for that clarification -- the light is traveling into this portion from the left, it stays within it, and goes out the portion on the right?

13:24:50 A. That's what the diagram shows.

13:24:54 Q. And that is what is understood by this kind of an ideal waveguide?

13:25:00 A. That's an example I use to describe the theory of optical waveguides. It's certainly not the only way an optical waveguide can be configured.

13:25:12 Q. And I'm not trying to trip you up on that.

That's why my question is focusing on the example you've provided.

13:25:16 A. Okay.

13:25:16 Q. And all I really want to establish is, what makes it the ideal waveguide is that the light stays within it as it travels through?

13:25:25 A. That's the consequence of what makes it ideal, is that the surfaces are very smooth, that there are no centers in there to defract the light it scattered, and so the light stays inside, yes.

13:25:39 Q. Comes in one end and goes out the other? At least at this portion?

13:25:40 A. Yes.

13:25:44 Q. And a good example, I think, of close to ideal waveguide would be the fiber optics that are used for communications systems?

13:25:50 A. I would agree with that.

13:25:53 Q. And the idea is, again, with that fiber optic, the light goes in one end, stays within it, until it comes out the other end?

13:26:02 A. The goal of that guide is to get as much light as possible from one end to the other. And it's not intended to be a lossy (ph) waveguide and having light coming out of the side.

13:26:13 Q. Sometimes those are called light pipes?

13:26:15 A. Light pipes and waveguides are interchangeable.

13:26:17 Q. And I want to make sure, if I can use a really simple analogy. This no leakage is what I want to focus on. It's kind of like when I turn my faucet on my hose, once it gets in there, it doesn't come out until it gets to the end of the hose. No leakage.

13:26:34 A. Well, theoretically there is no leakage. No actual waveguide is perfect. Every actual waveguide has some leakage.

13:26:42 Q. And probably no garden hose is perfect, either. Certainly mine aren't.

13:26:47 A. Well, there is more light leakage in waveguides percentage to the amount of flowing than there is in your typical garden hose.

13:26:50 Q. But the idea, again, is --

13:26:57 THE COURT: You have to speak up, sir. The guy at end has to hear you.

13:26:59 THE WITNESS: I'm sorry.

13:26:59 BY MR. KITTREDGE:

13:27:02 Q. The idea is, even with my hose or the waveguide, the water goes in one end and comes out the other, and hopefully you don't have any leakage if it's ideal?

13:27:11 A. That's true. That's correct.

13:27:18 Q. If we could next look at Exhibit 29 J. And I think, if I understood your testimony correctly, 29 J depicts

an example of a leaky waveguide?

13:27:28 A. Of one type of leaky waveguide.

13:27:30 Q. And that's what I said exactly. I'm not trying to be tricky. And this is a leaky waveguide because those defects cause the light to reflect into a certain direction that's sharp enough that it leaks out the sides?

13:27:41 A. Yes.

13:27:45 Q. Back to my backyard analogy. It's kind of like a soaker hose has defects, so the water leaks out all over the place?

13:27:53 A. No, that's wrong.

13:27:53 Q. Why is that?

13:27:57 A. The analogy to your soaker hose would be the other example I showed with a rough interface.

13:27:59 Q. Oh, so that would be --

13:28:01 A. The soaker hose works not because of anything in the bulk of the hose but because the surface isn't perfect.

13:28:08 Q. Okay. And that would be Exhibit 29 I. Can we pull that up? I want to make sure I've got the right example, sir. Is this the one?

13:28:16 A. That would be closer to your soaker hose.

13:28:16 Q. Okay.

13:28:19 A. There are actual real optical waveguides that have holes in the pipe.

13:28:24 Q. In the outer part of the pipe?

13:28:27 A. In the outer shell which allow light to leak out.

13:28:28 Q. I see.

13:28:32 A. Those are the kind of waveguides fusion lighting used, and those would be more similar to your leaky hose.

13:28:37 Q. More similar to the soaker hose?

13:28:44 A. To the soaker hose, yes.

13:28:53 Q. Okay. I'm going to be referring to your expert report, which I believe is Exhibit 29. Yeah, Exhibit 29. Would it help you to have a copy of that?

13:29:12 A. It might, depending on what you ask.

13:29:16 Q. Why don't we get that for you, just in case. I'm going to be doing the same thing with the overhead, but I want you to have what you need.

13:29:20 A. Okay.

13:29:37 Q. Do we have a copy of that? Exhibit 29. It was handed to them yesterday. Could we hand it to the witness.

Dr. Roberts, we've handed you a document that has been marked Plaintiff's Exhibit 29. Do you recognize it?

13:30:02 A. Yes, I do.

13:30:05 Q. Is that the expert report you served on your opinions on infringement in this case?

13:30:11 A. It appears to be. Without checking each and every page, I can't ascertain.

13:30:17 Q. I'm not going to ask you to check each and every page, but if you feel the need to, please do.

13:30:24 A. No.

13:30:44 Q. If we could pull up Exhibit 29 Q. And this is Figure 22 from your expert report?

13:30:47 A. Okay.

13:30:48 Q. Do you recognize it, sir?

13:30:49 A. Yes, I do.

13:30:53 Q. And I only want to use this kind of as illustrative of -- you know, the two gray things on the left and right side -- those represent the sidewalls?

13:31:05 A. That's correct.

13:31:09 Q. And this is a drawing you made representing one of Fallon's products?

13:31:13 A. Yes, it is.

13:31:15 Q. And we heard a lot of testimony from you yesterday about those sidewalls. And that's really what I wanted to share with you, so we could just kind of have a frame of reference. The claims that are at issue in this lawsuit -- they don't require just sidewalls, they require -- I think all of the claims require sidewalls that have an inner light reflective surface?

13:31:43 A. Yes.

13:31:48 Q. And most of the claims, or certainly a lot of the claims, also require sidewalls that have an outer light

absorptive surface?

13:31:56 A. That's correct.

13:31:59 Q. That's the same sidewalls we're talking about?

13:32:01 A. Not exactly.

13:32:03 Q. That's not the sidewalls we see here?

13:32:05 A. Well, there is an inside surface to the sidewall, and there is an outside surface to the sidewall. And they are not exactly the same.

13:32:14 Q. I did not mean to suggest the surfaces are the same. I'm talking about the surfaces of the same sidewalls.

13:32:23 A. The surfaces of the same sidewalls.

13:32:46 Q. Can we pull up his report, Exhibit 29. I'm sorry I didn't tell you where to go. Go to Page 14. And could we highlight Paragraph 72. And I highlighted the whole paragraph here for you, Dr. Roberts. But I really wanted to focus on the last sentence, and I will go ahead and read that into the record. It says, quote:

13:33:23 In addition, comma, no real surface has a reflectivity of 100 percent, as a portion of incident light is always absorbed, period, close quote.

13:33:32 Did I read that correctly?

13:33:33 A. Yes, you did.

13:33:34 Q. And that's a true statement?

13:33:35 A. That is.

13:33:38 Q. And if I understand what that means, I think it

says all surfaces are light absorptive?

A. To some extent.

Q. To some extent.

A. It's just a question of degree. It's a question of the relative proportion of reflectivity and absorptivity, yes.

Q. But all surfaces are light absorptive, at least to some extent?

A. To some extent.

Q. And the paragraph doesn't say it expressly, but I'm assuming the opposite is also true -- tell me if I'm wrong -- that all surfaces are reflective?

A. To some extent.

Q. To some extent. Can we go back to Exhibit 29 Q. So if we look at Exhibit 29 Q again, we have those sidewalls. If all surfaces are light reflective to some extent, does that mean that any sidewall that exists in this configuration is going to be light reflective to the inner sidewall?

A. It's really hard to say. I mean, in this case there is a judgment about the function in the device about reflective sidewalls. If I could not see the LEDs, for example, reflecting in the walls of the object, if the reflectivity of the inside sidewalls was so low that I could not see any light from the LED reflecting off the sidewalls,

even though I knew there might be a tenth of a percent of light reflectivity off the sidewalls, I do not believe I would have declared them to be reflective sidewalls.

13:36:05 In this case the sidewalls were so reflective that we saw clear images of the LEDs in the sidewalls, and they were, indeed, reflective.

13:36:11 If I may point out also that the issue of the reflectivity in the patents is not just the fact that they are reflective, but almost all the claims require that this reflectivity have a functional use in reflecting light onto the light absorbing surface of the light transmitting member. Onto the light receiving surface of the light transmitting member. And that's something we can test, and it's more than an observation of just looking at the sidewalls to see if they are reflective.

13:36:41 Q. So if the reflectivity is at all measurable, then it's going to be an inner reflective sidewall?

13:36:48 A. First of all, let me point out that the Court has defined the terms "light reflective" and "light absorptive" for this case. And I don't have those definitions in front of me right now, but based on those definitions, these sidewalls are reflective, but other sidewalls with a small amount of light reflectivity may not be light reflective based on that definition.

13:37:16 Q. Well, you did a lot of studies testing the

reflectivity of the inner sidewall and the outer sidewall?

A. Yes, I did.

Q. If we turn those walls around --

A. Yes.

Q. -- would that outer sidewall be a light reflective surface if it's now on the inside?

A. If the outer sidewall were shiny.

Q. I want to know about the outer sidewall you tested.

A. I'm sorry. Ask your question again.

Q. If we take that sidewall that you tested, you tested the inner -- the reflectivity of the inner surface and the reflectivity of the outer surface, and it was that differential that you used to conclude the inner surface was reflective; correct?

A. Yes.

Q. If I take that sidewall and turn it around so now what's on the outside of what you tested is on the inside is it a light reflective surface?

A. It would be because it's a specular reflective surface. It actually images light sources, and it would be much more visible to -- in that case, in those cases where it is visible, such as in the new Bowtie sign, it would be much more visible to the consumer who is looking at the sign if there is an external light source because it would be bouncing

off a mirror if the light would be bouncing off a mirror-like surface. In that case it would not be light absorptive as intended in the patents.

13:38:38 Q. Either I misunderstood your answer or you misunderstood my question.

13:38:41 A. Perhaps I've did.

13:38:43 Q. Let me be real careful and see if I can ask it again. I want to focus on the outer sidewall that you said in your report, in your infringement analysis, was light absorptive. And it's less reflective, we know, than the inner sidewall. We know that from your report and in your testimony yesterday.

13:39:00 A. I'm sorry. Say that again.

13:39:04 Q. The sidewall that you analyzed from the Fallon Xenon sign, the Open sign, you did light reflectivity studies to show that the inner sidewall was more reflective than the outer sidewall?

13:39:15 A. That's not a correct characterization.

13:39:17 Q. What is the characterization?

13:39:21 A. It has a higher amount of specular reflection. The peak intensity is higher. The total amount of reflectivity of both sides is approximately the same, but the specular reflectivity of the inside surface makes it function as a reflective sidewall on the inside as it would not if it were diffuse.

13:39:40 Q. Okay. So the inside sidewall and the outside of the sidewall have the same total reflectivity?

13:39:46 A. Approximately the same total amount of reflectivity. But the inside one has its directive reflectivity characteristic that makes it more useful in directing light from the LEDs up to the light absorbing surface -- to the light absorbing surface of the light transmissive member.

13:40:12 Q. Okay. Now I've got an inside sidewall that has the same total reflectivity as the outside sidewall --

13:40:18 A. But my --

13:40:18 Q. Let me finish my question. Inside sidewall that has approximately the same total reflectivity as the outside sidewall, but it's a light reflective surface because it's specular reflectivity?

13:40:30 A. It's a function of -- yes, because it's specular and the configuration it's in, it serves as a light reflective surface.

13:40:41 Q. But the outside sidewall is a light absorptive surface because it's not specular. What's the other term?

13:40:46 A. Diffuse.

13:40:48 Q. Diffuse. It's a diffuse, is that correct?

13:40:50 A. Yes. And it's dark, and it's matte or diffuse and serves to hide the surface when rest of the sign is lit up, especially if it's on the outside -- when it's on the

outside of the sign.

Q. The sidewalls in the Fallon Xenon Open sign -- those sidewalls aren't on the outside, are they?

A. Those sidewalls are not on the outside.

Q. Let's go back to now the sidewalls. I've got a diffuse surface on the outside and a speculative mirror shiny surface on the inside.

A. Right.

Q. If I turn it around.

A. Yes.

Q. So now I have diffuse surfaces on the inside and the specular surfaces, the shiny surfaces, on the outside, you would agree, wouldn't you, in that situation, my inner surface, my inner sidewall, is not light reflective?

A. The inner surface would probably fail -- I haven't run that test, but with the matte surface on the inside, the inner surface would probably fail to produce a significant amount of reduction of light intensity when it was removed.

Q. And that would mean it's not light reflective?

A. That would mean it's functionally not light reflective in this application.

Q. And not light reflective, as you understand that term, is used in the claims and the patents-in-suit?

A. And as defined by the Court.

13:42:10 Q. And as defined by the Court?

13:42:15 A. Yes.

13:42:20 Q. The next question is just the flip side. Again, we've got the wall turned around, so now the shiny surface is on the outside. And in your opinion, that would no longer be a light absorptive surface on the outside?

13:42:33 A. The outside of the inner housings would no longer be light absorptive if they were shiny.

13:42:46 Q. With the inner sidewalls, again, if I take the Fallon Xenon sign, the Xenon Open sign, instead of turning the sidewalls around, if I just spray some flat black paint in there, do I get the same effect that is now no longer a light reflective surface?

13:43:04 A. Well, I believe you note from my report that I tried that. And it did not reduce the reflectivity very much. But there is no -- I have no way to measure how flat my flat black paint was that I used. So I decided that removing the walls is the better way to run the experiment.

13:43:35 Q. Do you understand the claims to require for a reflective sidewall that it be a specular or shiny surface?

13:43:42 A. No, only that the sidewall serve to collect and reflect the light onto the light absorbing surface. I think I'm using the wrong word there. Of the light transmitting member.

13:43:53 Q. So it can be a diffuse surface?

13:43:55 A. It can be a diffuse surface. The question is, how much light bounces off that surface from the LED and ends up on the bottom surface on the light emitting -- on the light absorbing surface of the light transmitting member.

13:44:10 Q. And again, the patents describe using a flat but light colored or white surface, don't they?

13:44:15 A. In this specification, the patents suggest the use of a white or light colored surface. But the Court has ruled that is not an issue in the claims.

13:44:23 Q. I understand what the Court has ruled, sir. And I'm not trying to ask you to say something different. I just want to make sure it's clear, the only reflective surface the patents describe are a flat, light colored or white; isn't that correct?

13:44:40 A. In this specification part of the patent, the patents suggest the use of white or light colored material on the inside surface.

13:44:48 Q. And it also described it as a flat material?

13:44:49 A. It may. I don't remember that particular point, but it may, which is -- I don't have any dispute with that.

13:45:12 Q. So do I understand also that -- does light reflective inner sidewall -- you keep saying it has a functional aspect?

13:45:20 A. Yes, sir.

13:45:22 Q. To determine whether it's a light reflective surface, does looking at the -- the front of the sign, the light coming out, is that part of the analysis?

13:45:33 A. I'm sorry, ask your question again?

13:45:35 Q. We heard a lot of testimony yesterday about what an observer would think and how it appears to an observer. I'm trying to figure out if some of that testimony fits with what's a light reflective surface.

13:45:47 A. Okay. Let me clarify that point now. Certain claims of the patents talk about something which appears -- appears uniform, for example, appears is a human perception kind of description. It's the way it would look to another human when you look at it. There are other claims of the patent that say something is or is not happening. Now, that's more of a measurable issue. It doesn't require human perception.

13:46:18 The claims say that the walls do collect and reflect light onto the light transmitting member. They don't say that perceived such by an observer, they say they do. And because they say they do, in simple absolute terms, that's something I can measure with instruments, and something I did measure with instruments, and found to be true.

13:46:37 Q. I think I understand, and I think I understand it. That's what I thought your testimony was, but let me see if I can summarize it real quickly. And that is, the human

observer test isn't relevant to considering whether or not the inner side walls are reflective because you can measure it?

13:46:56 A. The human observer test is relevant to those claims that use the word "appears". When the claim uses the word "is" or something does happen, that's an effect which can be measured with instruments by an engineer or scientist. In that case, I measured it rather than relying on my human observation, because the issue is, does it do it, or does it not do it, versus does it appear to do, which is a different standard.

13:47:22 Q. I didn't think the claims said "appears" in connection with the reflective inner sidewalls.

13:47:28 A. They don't.

13:47:28 Q. Okay. So the claims that have the word "appears in it, does that affect how you conclude whether or not the inner sidewall is reflective?

13:47:34 A. No.

13:47:36 Q. Okay. That's what I thought I was trying to clarify, and I think we just did. If we could put -- pull up Exhibit 2. And let's go to Claim 1, which I think is Column 8. And highlight where it says "an essentially". That little clause right there. Blow that up.

13:49:01 The claim requires an essentially solid leaky waveguide rod. And you found that, if I understand your testimony yesterday, that all of the products that you

analyzed from Fallon have that waveguide?

A. Yes.

Q. And I think it's Exhibit 11 A that you were looking at yesterday. I don't know if that's handy. It's this. Is it up there somewhere? Why don't you hand it to him. The Exhibit 11 A, you can see I'm holding the same basic piece of plastic?

A. Yes.

Q. And you, through your analysis, concluded this piece of plastic is a waveguide as required by many of the claims in the patents-in-suit?

A. That's correct.

Q. Could we see Exhibit 29 F?

THE COURT: Do you have the exhibit?

BY MR. KITTREDGE:

Q. There we go. Dr. Roberts, this is one of the Exhibit 29 F, it's also Figure 10 out of your expert report. I believe you testified about this a little bit yesterday?

A. I did.

Q. And it was in the section of your testimony where you were explaining how waveguides work?

A. That's correct.

Q. And this was in conjunction with something I think you called Snell's Law?

A. That's correct.

13:52:01 Q. And I heard a lot of very detailed scientific testimony yesterday. Does Snell's Law appear anywhere in the patents?

13:52:05 A. No.

13:52:08 Q. Does the jury need to understand Snell's Law to decide if this piece of plastic is a waveguide?

13:52:12 A. I don't think so.

13:52:15 Q. Did you use it to decide whether this piece of plastic is a waveguide?

13:52:23 A. Did I use it to decide -- in a sense, yes. I mean, it is through Snell's Law that we understand that light passing from a material with a high index of refraction into a material of a low index of refraction or light can be -- I'm sorry, prevented from passing from a material of a high index into a low index if that light travels above the critical angle, as defined by Snell's Law.

13:52:54 And so use it in the sense of analyzing it, but knowledge of that principle is what makes waveguides work.

13:53:04 Q. You use the principle in your general background, but you didn't use Snell's Law to do any calculations or analysis in this actual study?

13:53:16 A. I did check that plastics have index of refraction greater than air.

13:53:30 Q. Okay. And maybe we can look at Exhibit 29 H.

13:53:32 Is this what you are referring to?

13:53:35 A. It's also shown on the previous one also, yes.
13:53:38 Q. I'm sorry. I've got to take baby steps.
13:53:39 A. Okay.
13:53:40 Q. And this shows plastic with an index of refraction of 1.5?
13:53:45 A. Yes, which is typical for most plastics of this general type.
13:53:49 Q. Did you actually measure the refraction of this piece of plastic?
13:53:56 A. No, I did not.
13:54:09 Q. Can we pull up Exhibit 29 J. And we looked at this a moment ago, Exhibit 29 J. This is a representation of a leaky waveguide caused by the plastic having defects?
13:54:17 A. Yes.
13:54:19 Q. And do I understand your opinion correctly that this piece of plastic has those kind of defects, and that's what makes it a leaky waveguide?
13:54:25 A. Yes.
13:54:29 Q. Did you do anything to measure the defects in this piece of plastic?
13:54:32 A. No, I did not. It's -- the light translucent nature of the bulk material indicates the presence of those defects.
13:54:43 Q. All right.
13:54:46 A. Can I go back to the previous question about

measuring the index of refraction? To the best of my knowledge, there are no plastics, actually no materials that I know of, which have a material refraction less than air other than a vacuum, which is slightly less than air. So you can be assured that any material transmitting light would have an index of refraction greater than air without measuring it and without looking it up.

13:55:12 Q. Okay. And if I understand how index of refraction and waveguides works from your testimony yesterday, that means any material that's not air would be a waveguide?

13:55:24 A. If it -- it could be a waveguide if properly configured. And if it transmits light.

13:55:28 Q. I'm sorry?

13:55:32 A. And if it transmits light. A piece of wood would not make a waveguide, in spite of its index of refraction.

13:55:37 Q. I understood. And that was the assumption I was making. And I'm glad you clarified. This is not a waveguide?

13:55:44 A. No.

13:55:47 Q. But if we've got a piece of plastic that is milky like this, you can look at it and decide it's a waveguide?

13:55:56 A. Because plastics had -- because plastic has an index of refraction greater than air, if it has relatively

smooth surfaces, as this does, and configured as this does, it can act as a waveguide, yes

13:56:32 Q. So if we look at Fallon's signs, if I want to make a sign like Fallon has with LEDs and a plastic cover over the letters, if I use any kind of milky plastic, it's going to be a waveguide?

13:56:52 A. Any kind, it's going to be a waveguide? Most likely, depending upon how you configure the surface. But in all likelihood, it would.

13:57:01 Q. So if I take a piece of plastic that has been used to cover channel letters in the signing industry for 80 years, and put it on one of Fallon's signs, it becomes a waveguide because -- it is a waveguide. But using it the same way they are using it, it's a waveguide?

13:57:17 A. It would probably be operating as a waveguide to some extent.

13:57:47 Q. Can we pull up Exhibit 29 BB? Two Bs as in boy. And this is Exhibit 29 BB, Plaintiff's Exhibit, that's also Figure 36 of your expert report. Do you recognize it?

13:57:58 A. Yes, I do.

13:58:01 Q. This is where you shined a single LED through the piece of plastic that Fallon uses on top of its letters?

13:58:07 A. Yes.

13:58:08 Q. I think your testimony may have just clarified that a little bit for me. But when I read this, I thought

that that was the sole test you did to determine whether or not Fallon's piece of plastic was acting as a waveguide.

13:58:23 A. That was a test run to see whether the light pattern was elongated as specified in the claims of the patents.

13:58:31 Q. So did you do any testing, any scientific testing or measurements, of this piece of plastic to determine if it's a waveguide?

13:58:41 A. No. Because of its index of refraction being greater than air, its general configuration, it is my opinion that it is operating as a waveguide, and it would be highly unlikely that it's not.

13:59:11 Q. So could we go back to Exhibit 29 H. And I keep going back to this because it's a nice figure that I think I understand. If I understand your testimony correctly, sir, you didn't do anything to actually measure the light propagation along the length of this piece of plastic?

13:59:29 A. No, I did not.

13:59:40 Q. Can we go to Figure 29 J, please. Am I correct in understanding also, when we look at Figure -- let me back up a second so that I'm not confusing. Figure 29 J shows your example of a leaky waveguide?

13:59:52 A. Yes.

13:59:57 Q. And am I correct that you didn't do anything to actually measure how -- whatever defects are in Fallon's piece

of plastic, how those are scattering the light and causing it to leak?

14:00:11 A. The observation that this material as a milky white translucent -- is a milky white translucent material in the bulk is sufficient to conclude that it contains optical defects.

14:00:23 Q. So you can look at a piece of white milky plastic and decide it's a waveguide?

14:00:31 A. I can decide that it has optical defects inside if it's not transparent and it shows a milky white appearance that's in the bulk of the material and not simply related to the surface.

14:00:48 Q. A smooth piece of milky translucent plastic is a waveguide?

14:00:53 A. That's not exactly the question you asked about this figure, which is about defects. But any light transmissive material which, as we said, has an index of refraction greater than air, as they all do to the best of my knowledge, okay, when properly configured will act as a waveguide, an optical waveguide.

14:01:17 Q. So any piece of smooth milky translucent plastic that's placed over LEDs the way Fallon does with its signs, it becomes a waveguide?

14:01:28 A. It can be if properly configured.

14:01:34 Q. Well, you just lay it down flat over the LEDs,

above them, light comes in the bottom, that's a waveguide?

14:01:40 A. It will act as a waveguide if it's properly configured. The -- I mean, is a waveguide? Things that are waveguides may not act as a waveguide if they don't have light coming into them in the proper way. You can take a waveguide like I have, an in fed waveguide, and you can feed light in below the critical angle, and it will come right out, and it will not act as a waveguide because it wasn't properly configured with its light source.

14:02:14 Q. And I want to talk about the configuration in the Fallon signs.

14:02:14 A. Okay.

14:02:20 Q. You've got this piece of plastic sitting over it, LEDs below it?

14:02:21 A. Right.

14:02:24 Q. So I've got a row of LEDs. I put any smooth piece of translucent milky plastic over those LEDs, that piece of plastic is now a waveguide?

14:02:35 A. That piece of plastic will probably have waveguiding properties.

14:02:38 Q. And based on your analysis and your expert opinion, we look back at that Claim 1 of '262 which requires a waveguide, that would meet that requirement of being a waveguide?

14:02:54 A. The Fallon claims are a little -- I'm sorry,

the iLight claims are combinational claims where they -- you've got the shape of the material, you've got the material, you have the shape of the material with the curved front surface, you have the LEDs illuminating it, such that the material acts as a leaky waveguide.

14:03:18 The leaky waveguide is defined by the inventors in the patent. The inventors, as you know, have the right to define terms used in their claims in their patents; correct? And the inventors of the iLight patents define what they mean as a leaky waveguide in the specification of their patents. And they use that term then in the claims of their patent. And they use it consistent with their definition in the patent about the definition of a leaky waveguide.

14:03:51 And that definition that they give in their own patent supersedes what may be the most normal -- in my understanding, supersedes what may be the most normal and common definition of an optical waveguide, as it would in any patent if the inventor defines the terms and specification that he is going to use in the claims.

14:04:14 Q. I thought that's what we were using as the definition as you understood it from the patent. Well, let's pull up Exhibit 2 again, make sure it's clear. Can we go to Claim 1, that's Column 10. And can we highlight that -- the line after the end, an essentially solid leaky waveguide.

14:04:52 And I'm talking about a claim language used by the

inventors in this lawsuit?

14:04:54 A. Right.

14:04:56 Q. I hope I didn't suggest otherwise in my question to you, sir. But if we talk about essentially solid leaky waveguide, I want to ask you a question about that leaky waveguide.

14:05:06 A. Okay.

14:05:07 Q. And if I understand your testimony yesterday, and the testimony I think you have given today, I take a row of LEDs -- imagine my fingers as LEDs -- I take a piece of smooth, translucent milky plastic, put it over those LEDs, that piece of plastic will act as a leaky waveguide?

14:05:30 A. It will -- I mean, if you have an extremely high amount of defects inside, and the light does not get to travel through or very far, there may be less waveguiding effect, but yes, there is going to be waveguiding effect. There is going to be more in a clear -- in a basically clear piece of plastic, there will be more. In a diffuse piece of plastic, there perhaps may be slightly less, but there will be a waveguiding effect of the light that enters the plastic. Some of the light rays will be above the critical angle. Those light rays will be trapped in the plastic, as we described.

14:06:11 Q. And we'll --

14:06:11 A So we have an optical waveguide.

14:06:12 Q. And I apologize. I don't want to keep talking over you. I thought you were done. My turn?

14:06:15 A. Your turn.

14:06:21 Q. So, if I understand again, you kind of gave a spectrum from clearer to really cloudy. And I'm talking about a basic milky translucent piece of plastic that will transmit light. If I configure it the way Fallon did, that piece of plastic is going to be a leaky waveguide as you understand it in the claims at issue in this lawsuit.

14:06:44 A. Let me clarify my answer then about why I used the range. I determined that these pieces of plastic used in the Fallon signs were leaky waveguides as described in the patents. You are using the term, any piece of white translucent plastic. I can imagine some pieces of white translucent plastic that have so little light translucidity that it might be a bit hard to identify them as waveguides.

So I'm talking about these pieces of plastic that were used in the Fallon signs meeting that claim.

14:07:17 Q. So it's got to be a waveguide unless it's so cloudy you hardly see any light come through it?

14:07:24 A. You could still argue it would be waveguide, but the argument -- you know, it's a little bit harder to see the waveguiding effect at very high levels of something.

14:07:36 Q. Did you happen to notice there is a light fixture as you come in off the stairs that's got a long piece

of smooth plastic up on the ceiling in the hallway out here?

14:07:46 A. I didn't see that. I do not recall that. Which is unusual, since I do tend to notice fixtures.

14:07:49 Q. Tend to look at the lights?

14:07:52 A. Yes.

14:07:54 THE COURT: Haven't we got enough products in this case?

14:08:23 MR. KITTREDGE: I would hope, Your Honor.

14:08:25 BY MR. KITTREDGE:

14:08:29 Q. If I -- and on this topic this may be our last question, I'm hoping. But if I understood it your testimony, and you are hoping too, soon, as well, and they are probably really hoping. But if we understand your testimony correctly, you described a really cloudy piece of plastic so that very little light actually comes through, you don't think that would be a leaky waveguide in the context of these claims of the patents-in-suit?

14:09:03 A. I said it might not be. I didn't say I didn't think it would be, okay? I would have to look at the individual case.

14:09:11 Q. I see. Is that the best example that you can come up with today of a translucent piece of plastic, smooth, that would not be -- might not be a leaky waveguide?

14:09:26 A. If it's smooth and it's -- and it transmits light, and it's made of any material with an index refraction

greater than air, which includes to the best of my knowledge all plastic materials and all glasses, that would indeed have waveguiding properties, and, depending how the light entered it, it would act as a waveguide, as an optical waveguide.

14:09:50 Q. And again, I'm talking about the light entering from the bottom from the row of LEDs just like we have in this case.

14:09:57 A. Remember, the light from the LEDs enters dispersively, enters as a cone, so not all of the rays enter perpendicular to the surface. Some rays enter at an angle perpendicular.

14:10:12 THE COURT: Is it a fair statement that it would be a waveguide if it produces the effect of what the plaintiff's product produces?

14:10:25 THE WITNESS: The effect of the plaintiff's product is based on more than just a waveguiding effect. It's based on the distance of the LEDs and the curved front surface of the waveguide. But I think the answer to your question would probably be yes.

14:11:00 BY MR. KITTREDGE:

14:11:02 Q. Do I understand that you did look at, at least a little bit, maybe analyzed the plaintiff's products?

14:11:10 A. I never looked at the plaintiff's products. That's not an issue in the case.

14:11:15 Q. Okay. I thought you were answering with regard

to plaintiff's products. I may have misheard.

A. I'm sorry. Maybe I misunderstood the Court's question.

Q. I may have also. But you weren't talking -- you did not analyze the plaintiff's products? Let's just be clear about that.

A. I have never seen the plaintiff's products in -- hardware, other than the pictures.

Q. Until you saw the testimony about them here in this courtroom?

A. Yes. Plaintiff's products are not relevant to whether Fallon's products infringe the actual claims of the plaintiff's patents. We're talking about patents owned by one company and basically products produced by another company. At least that's how I understand it.

Q. Excuse me?

A. That is how I understand the situation.

Q. Now, you have been given -- I'm guessing the attorneys for iLight gave you the Court's definition of rod?

A. Yes. I am not sure I have the very latest one, though. But I do have those here. Let me check on that.

Q. And I have what I believe is the latest one. And if we can put it on the screen, and counsel can tell me if we've got it wrong. Blow up the definition.

THE COURT: Ladies and gentlemen of the jury, we're

going to excuse you for a few minutes. Please don't discuss the evidence amongst yourselves until you receive all of the evidence, the argument of counsel and the charge of the Court. It will be a few minutes. We're going to excuse you for a few minutes.

14:13:33 (Jury out.)

14:13:37 THE COURT: There was a reference to the Court's interpretation or construction of the claims, and I want to be sure everybody is on the same page, so we'll be in recess.

14:19:45 (Recess.)

14:19:48 THE COURT: If there are going to be any future references to the Court's constructions, I have initialed the first page and dated it and signed the second page so that there will be clarity as to any reference to the Court's specifications.

14:20:22 You may bring the jury in.

14:20:28 MR. KITTREDGE: Oh, I see. That's fine. I didn't see this one point. That's fine. Thank you, sir.

14:20:42 THE COURT: The jury is coming in, counsel. You can have a seat.

14:20:56 (Jury in.)

14:20:59 THE COURT: Counsel.

14:21:02 BY MR. KITTREDGE:

14:21:07 Q. The Court has distributed -- the Court has given us a signed and dated one. I think it's probably best

if we both are looking at the exact same document.

14:21:18 A. Very well. Thank you.

14:21:23 Q. We've got to switch the technology briefly to power up here, make sure I do it right. What I want to focus on is the definition of rod. I just want to make sure you can read it and the jury can read it.

14:22:01 THE COURT: Ladies and gentlemen of the jury, you will get the Court's construction of the claims in this case embodied in the jury instructions.

14:22:11 BY MR. KITTREDGE:

14:22:13 Q. And I just want to make sure, Dr. Roberts. The definition of rod here, rod is a slender strip or slender bar resembling in shape a wand. That's the definition you were using yesterday when you testified?

14:22:25 A. Yes, sir.

14:22:29 Q. And you decided that this piece of plastic Fallon uses on its signs is a rod?

14:22:35 A. Yes, based off that definition, yes.

14:22:36 Q. I would kind of like to make sure I understand how you are using the definition. If I can use a couple of examples. If you look at the wand your microphone is on, is that a rod?

14:22:50 A. Yes, it's a rod.

14:22:53 Q. And can you see the bar up here that the light is suspended on?

14:22:55 A. Not very well.

14:22:59 Q. How about if I turned it?

14:22:59 A. Yes.

14:23:00 Q. Is this a rod?

14:23:03 A. That would appear to be a rod.

14:23:05 Q. And I don't know if the ladies and gentlemen can you see what we're -- it's a rod, even though it has -- it's obviously hollow, because there is a wire that runs through it?

14:23:19 A. Well, I didn't say it was a solid rod. I said it was a rod.

14:23:22 Q. I didn't ask if it was a solid rod. It's a rod?

14:23:25 A. I believe it's rod-shaped, yes.

14:23:26 Q. Rod-like?

14:23:27 A. Rod-like.

14:23:30 Q. The same thing with the rod that the microphone is on?

14:23:34 A. Yes. There are different parts of it, and the separate parts would be rods, yes. Most of them. Maybe not the goose neck. Or rod-like.

14:23:57 Q. Why did you use the word solid a moment ago? Because I don't see solid in the Court's definition anywhere.

14:24:01 A. Because solid is in the claims. Essentially solid rod-like member is in the claims, and there was no need

to define -- apparently no need to define solid, even though there was a need to define rod and rod-like.

14:24:57 Q. Can we pull up Exhibit 3. Dr. Roberts, we are showing you Exhibit 3, which is the '970 Patent. I haven't put a copy of it in front of you, but do you recognize the '970 Patent?

14:25:06 A. I do.

14:25:14 Q. Can we scroll down to Column 10. Highlight the first "A rod" portion. Expand it under Claim 1.

14:25:26 It says, "a rod-like member having a predetermined length and a curved light emitting surface".

14:25:36 At least Claim 1 of the '970 doesn't require a solid rod, does it?

14:25:39 A. Well, that part doesn't. I don't have the whole claim in front of me, but I will take your word for it that it doesn't require solid in that one.

14:25:53 Q. And if we look at -- can we go down to Claim 8, and highlight the first element there. Claim 8 says, "a rod-like member having a predetermined length."

14:26:15 The word solid doesn't appear in this claim, either?

14:26:20 A. That seems to be correct.

14:26:33 Q. If you would look at the blinds that are in the windows?

14:26:34 A. Yes.

14:26:36 Q. The strips?

14:26:37 A. Yes, sir.
14:26:39 Q. That form the series of them?
14:26:39 A. Yes, sir.
14:26:41 Q. Is one of those strips a rod under the definition?
14:26:45 A. They -- in my opinion they meet the Court's definition of a rod.
14:27:25 Q. Would a strip of paper like this be a rod?
14:27:28 A. Taking anything to its extreme always challenges a definition, but yes, based on the Court's definition, that would be a rod.
14:27:36 Q. Would this be a solid rod?
14:27:37 A. Absolutely.
14:27:41 Q. And if it were shaped like this, would it be a solid rod?
14:27:43 A. Absolutely.
14:27:59 Q. If it was shaped like this, is it a solid rod?
14:28:02 A. Well, it's a tubular rod-like object. It's a tube and it's rod-like.
14:28:06 Q. It's rod-like?
14:28:08 A. Right. But it's also a tube.
14:28:11 Q. Under the Court's definition is it a rod?
14:28:16 A. Is it a rod? Well, based on my earlier answer about this, which is also a tube, I would have to say that is a rod.

14:28:24 Q. And is it a solid rod?

14:28:28 A. It's certainly not a sold rod. It's a tubular construction.

14:28:31 Q. But this is a solid rod?

14:28:34 A. That is a solid rod. Even though it's extremely thin.

14:28:41 Q. Now, you would agree with this rod, not a solid rod, but you would agree that at least the portion that's the paper is solid?

14:28:49 A. It is a tubular rod-like object.

14:28:52 Q. I'm not asking about the whole thing. I'm just asking about the outer portion.

14:28:57 A. No, you can't talk -- the outer portion is no longer separate by itself. The object has been rolled up. It has been formed into something else. The outer surface is not a rod.

14:29:06 Q. I'm not asking if the outer surface is a rod. I apologize. Let me be very clear. I'm just asking you, the outer surface is solid?

14:29:14 A. The outer surface is solid. The object is not solid.

14:29:17 Q. The configuration is not solid?

14:29:20 A. The object you have created by rolling it up is not solid.

14:29:25 Q. Okay. So I know that, under your application

of your theory of infringement, if I had this curved like this, it is a rod, a solid rod?

14:29:32 A. Yes.

14:29:36 Q. But if I closed it so it's a loop, it stops being a solid rod?

14:29:42 A. It becomes a tube when it's closed.

14:29:44 Q. That's not a solid rod in your understanding?

14:29:49 A. It's not solid anymore because it's hollow on the inside.

14:29:52 Q. Right. And my question for you is, at what point does this piece of paper stop being a solid rod? Because I know it is here. How far do I have to curve these sides in?

14:30:07 A. You know, that's an excellent question that I have not put a definition on. But I know you are asking it in the context of the '186 Patent of Slayden. So as your piece of paper is thin, can I speak about Slayden for a second?

14:30:23 Q. Sure, let's put it up.

14:30:25 A. Slayden has a slot --

14:30:25 Q. Let's put the figure up so the jury knows what we're talking about. That's Exhibit 77, is it?

14:30:31 A. That's Figure 4 of Slayden.

14:30:57 THE COURT: Does the definition say resembling a wand?

14:31:01 THE WITNESS: Yes, it does.

14:32:50 THE COURT: Okay.

14:32:50 BY MR. KITTREDGE:

14:33:25 Q. Bear with us just a moment, Dr. Roberts. Okay. And this is the patent you were talking about, the patent by James Slayden?

14:33:33 A. This is the patent by Slayden, yes.

14:33:37 Q. If we could go to the next page. Actually, do we have an extra copy of it. The deputy is handing you Exhibit 77, Plaintiff's Exhibit 77. And that's the same thing we see on the screen here, the Slayden patent?

14:34:20 A. Yes, it is.

14:35:19 Q. If we could go to the next page, Colleen.

14:35:27 I apologize for the delay. If we look at the rod, the waveguide rod, on top of Figure 1, it's labeled Number 10.

14:35:34 A. Yes.

14:35:38 Q. That's a rod, but it's not a solid rod; is that correct?

14:35:45 A. Yes. Slayden actually calls it an elongated tubular -- I mean, he calls it a tubular diffuser. He never calls it a rod.

14:35:56 Q. The Patent Office called it a rod?

14:35:59 A. It would meet our definition of rod-like, but it's not solid, it's hollow.

14:36:07 Q. It would meet the definition of rod and rod-like? It's just not solid?

14:36:10 A. Right. It's hollow.

14:36:11 Q. Could we go to the next page. We're looking at Figure 2, and Figure 2 is the cross section of the same piece we were just looking at. Again, it's rod-like but not solid, under your analysis?

14:36:24 A. That's correct.

14:36:28 Q. Let's go ahead and look at Figure 4, because I know that's what you wanted.

14:36:28 A. Right.

14:36:30 Q. Figure 4, you were going to say -- I don't know what you were going to say, but you were going to say something and I want to give you a chance to do it.

14:36:37 THE COURT: Why don't you just ask him.

14:36:37 BY MR. KITTREDGE:

14:36:40 Q. What do you believe Figure 4 is? Is it a rod?

14:36:46 A. Figure 4 is what Slayden calls a slotted tube. He never tells us how big the slot is. He does tell us two things. He tells us he puts the slot in because it makes the insertion of Figure 4 into Figure 5 easier because he can compress it, so the slot doesn't have to be very big.

14:37:05 And he also tell us that when the slot is in there, the device doesn't work as well as it does without the slot. Okay? He also goes on a lot in the beginning of his patent about the importance of having a hollow tube instead of a solid tube -- you know, a solid rod, but having a hollow -- I'm sorry, having a hollow device.

14:37:26 Based on the measurements of that slot and the figure, I've measured that that slot is about eight percent of the total circumferential distance around that tube, which makes it rather small percentage-wise of the tube taken up by the slot.

14:37:48 Now, at some point between eight percent -- I do not think that that is a rod; I think it's a slotted tube. But I do agree with you. At some point between this eight percent figure, which is pretty small and the rather large gaps we have in things that I'm calling rods, we have to change our definition.

14:38:07 I don't know where that point is, but I haven't had to investigate that point because the two devices I'm working with are so dissimilar. One has a tiny slot, and one has a relatively large opening in the bend.

14:38:20 Q. I wanted to make sure you had a chance to finish.

14:38:21 A. I'm finished.

14:38:25 Q. My question really is a lot simpler than that. Your Honor, may I approach the screen?

14:38:33 THE COURT: I would really appreciate it if you would do less editorializing and more questioning.

14:38:39 MR. KITTREDGE: Yes, sir. May I approach the screen?

14:38:40 THE COURT: Yes, sir.

14:38:41 BY MR. KITTREDGE:

14:38:45 Q. I really want to focus on the horseshoe shape in Figure 4 from Slayden's patent and whether or not it's a rod, first. If I understand the testimony you gave when we were playing with the pieces of paper, this is a rod -- this horseshoe shaped waveguide from Slayden.

14:39:04 A. I don't know how you came to that conclusion. I believe I just said that I believe that is a slotted tube, which is how Slayden describes it, okay? So --

14:39:11 Q. But --

14:39:14 A. Well, I'm sorry. Let me back up. Let me correct myself. Yes, it's a rod. It's not a solid rod. A rod-like object, but not solid.

14:39:22 Q. I'm going to ask these questions one at a time. You will get a chance to make your point, sir. I will make sure you do.

14:39:28 A. Okay.

14:39:32 Q. But it is a rod? This horseshoe-shaped piece of plastic, waveguide, that's a rod?

14:39:37 A. It's a rod-like object.

14:39:40 Q. But because of this gap down at the bottom, you believe it's not a solid rod?

14:39:47 A. I believe it's a tubular slot and, therefore, not a solid rod.

14:39:52 Q. And if I understood correctly, you measured the circumference --

14:39:58 A. The outside circumference.
14:39:58 Q. The outside circumference?
14:39:59 A. That's the one that matters.
14:40:01 Q. From here?
14:40:05 A. Well, the circumference is the full distance from the center line at the bottom above the figure -- I can use my laser pointer.
14:40:10 Q. Yes, that would help.
14:40:13 A. The circumference is the full distance from here, going around that circle, back to there.
14:40:18 Q. The circle formed by this part of the arc?
14:40:19 A. By the outside surface, right.
14:40:21 Q. So if you connect this up --
14:40:24 A. Right. Slayden tells us that's nine-tenths of an inch in diameter. So that gives us the circumference. You can figure out the circumference from that. And then by measurement we can figure out the size of the slot. And the size of the slot is about a quarter of an inch. And the ratio of the two numbers says the slot uses up about eight percent of the circumference.
14:40:45 Q. Of the outside?
14:40:48 A. Of the outside circumference. The light emitting surface.
14:40:54 Q. If we did the inside surface, it would be a larger percentage, wouldn't it?

14:40:57 A. That's true.

14:41:01 Q. Did you bother to measure the angle from the center? If we tried to figure out which point of the circle is gone, one way of doing that would be actually measuring the angle?

14:41:11 A. When I was calculating the dimension, I may have measured the angle, but I didn't review that last night when I was thinking about the question of how big that slot was.

14:41:22 Q. Okay. I think I'm almost done here. If I understood you correctly, you know, based on your analysis and your expert opinion, that this eight percent gap, as you called it, in the horseshoe -- in the -- you called it a slotted tube, that eight percent gap means this is not a solid rod. But you don't know how far that gap has to be before it becomes a rod?

14:41:46 A. It's my opinion that, because the slot only uses eight percent of the circumference, okay, that is not a -- that remains a tube, a slotted tube, and not simply a solid rod.

14:42:01 Q. Okay.

14:42:06 A. And I do not -- you are right, I do not know where, as the eight percent gets bigger, it transitions into being a solid rod. But somewhere, maybe at that point which you are indicating, it would transition into a rod.

14:42:23 Q. Let me ask a question. If we cut these legs off at 9:00 and 3:00, that means cutting the circle in half.

A. Yes.

14:42:34 Q. We don't have to do any math. We know it's taking 50 percent of the circle away. At that point does the piece on top become a solid rod?

14:42:40 A. Absolutely.

14:42:44 Q. In fact, if it doesn't become a solid rod, you would have to conclude that Fallon's piece of plastic is not a solid rod also?

14:42:55 A. I have agreed with you that if you cut half of it off, it is indeed a solid rod.

14:42:58 Q. Do I also understand that you don't know, between eight percent and 50 percent, where it becomes a solid rod?

14:43:04 A. I have not addressed that issue.

14:43:06 Q. You don't know?

14:43:08 A. I don't know.

14:43:25 Q. Can we put the Court's claims construction back up on the Elmo? I want to focus on preferentially scatters light.

14:44:17 A. Yes.

14:44:21 Q. And you have the Court's construction in front of you also?

14:44:22 A. I do.

14:44:25 Q. The definition of preferentially scatters light -- this is the definition that you have used in giving the opinions you testified to yesterday?

14:44:33 A. Yes.

14:44:37 Q. And let's go back and talk about milky translucent plastic.

14:44:42 A. Yes.

14:44:43 Q. I guess translucent. Based on your understanding of this definition, would any milky translucent plastic preferentially scatter light?

14:44:53 A. No.

14:44:55 Q. Which ones wouldn't?

14:44:58 A. Depends how it's configured. I'm sorry. Ask your question again.

14:45:02 Q. I'm focusing on the term preferentially scatters.

14:45:04 A. Only the last question.

14:45:06 Q. I understand. I just want to make sure we're both clear. Based on your definition of the term preferentially scatters light as defined by the Court, would any piece of milky translucent plastic preferentially scatter light?

14:45:22 A. Depends how it's configured.

14:45:22 Q. Why is that?

14:45:26 A. Because a flat piece would not preferentially

scatter, and a curved piece would.

14:45:32 Q. And I want to make sure I understand which part of this definition makes that requirement.

14:45:39 A. That definition does not make the requirement. That definition defines preferentially scatters.

14:45:45 Q. Okay. And I'm trying to -- okay. What's the difference between the way a flat piece scatters and a curved piece scatters?

14:45:53 A. If you give me a board, I can draw you a diagram and show you.

14:45:58 Q. Try and describe it first and we'll see if we have it. I just want to make sure I understand.

14:46:01 A. Basic plastic materials such as those used in these signs do not have preferential directions of light scattering. They are what we call isotropic. They scatter equally in all directions. However, when a device is configured, as it is in the iLight patents, with a curved light emitting surface and illuminated by a light source such as an LED which has a dispersive cone of light rather than a laser which has a parallel beam of light, what happens is the light rays that are disbursing reach the sides of the element before they reach -- it's a shorter distance of travel from the LED to reach the side of the light transmissive member and a longer distance of travel to reach the center of the curve because it's further away, so the light has disbursed further.

So the light scatters then. Then the light gets an elongated pattern on the top surface, even with a circular LED, due to the fact that the material itself is curved.

14:47:00 Now, there is a second effect going on also. If you are familiar with optical fibers and waveguides and the whole issue we discussed with internal light traveling, you can understand that, as you bend an optical fiber, you lose light at the bend, because some of those light waves that were happily traveling along at greater than a critical angle now have to make a right turn, or left turn, and they see a surface that is no longer at the critical angle, that's less than the critical angle, and they leak out.

14:47:34 So when you are bending fibers, you kind of do it real slowly, you know, very gentle curves so you don't lose too much light. The fact is the sides of the light, when you have a curved light emitting surface, the rays traveling sideways inside across the device are going to have a bit more light leakage than the rays traveling along the long axis which has no curvature in the direction of travel.

14:48:01 I admit that that's a small amount, and it's not a very large effect, but it is there, and it satisfies the definition --

14:48:05 Q. Okay.

14:48:06 A. -- of the claims in the patent.

14:48:08 Q. I'm sorry, I don't mean to talk over you. Let

me make sure I understand what you are saying. Light enters the piece of plastic on the bottom from the LEDs?

14:48:16 A. Yes.

14:48:20 Q. Gets scattered along the length, gets scattered along the width?

14:48:26 A. I'm sorry. I said two separate things. There are two separate effects I described. Which one are you -- going back, the first or the second?

14:48:34 Q. I'm not sure which order they came in, so just tell me if I get something wrong. I'm not trying to describe everything you've just said, okay?

14:48:34 A. Okay.

14:48:37 Q. I've got to take baby steps. Light comes in the bottom?

14:48:38 A. Yes.

14:48:40 Q. It gets scattered along the length of the plastic?

14:48:42 A. Yes.

14:48:46 Q. And sideways, the lateral hits the width.

14:48:47 A. Right.

14:48:51 Q. A little more leaks out from the width because of the curvage?

14:48:54 A. Yes. That's one effect.

14:48:56 Q. Did you do anything to measure how much light leaks out on this piece of plastic, Fallon's lenses?

14:49:04 A. No, I didn't.

14:49:12 Q. It might help me if you look at Exhibit 29 AA. Exhibit 29 AA, that's Figure 35 from your report. Do you recognize it, sir?

14:49:32 A. I do.

14:49:33 Q. And I think you testified about it a little bit yesterday, didn't you?

14:49:39 A. I did.

14:49:43 Q. And I want to make sure I understand what's depicted here.

14:49:48 Is it okay if I go to the screen, Your Honor?

14:49:51 THE COURT: Yes, sir.

14:49:51 BY MR. KITTREDGE:

14:49:53 Q. We have numbers down here, and that's representing one inch, two inch, three inch, four inch, five inch?

14:49:58 A. Yes.

14:50:01 Q. And you have an LED at every half inch spacing starting at zero?

14:50:04 A. That's true. That's correct.

14:50:07 Q. And going both ways?

14:50:08 A. That's correct.

14:50:13 Q. Okay. And this is the luminance at the bottom of the piece of plastic on Fallon's lens?

14:50:19 A. Yes.

14:50:22 Q. So if we get out about three and a half inches out here the luminance, it's very uniform up to about three and a half inches, and then it starts to fall off?

14:50:34 A. Except you are defining your distance the wrong way. It's not that you are three and a half inches from the center; it's that you are one and a half inches from the end.

14:50:42 Q. You got to my next question, sir. I'm just talking about this chart. On this chart --

14:50:47 THE COURT: If you stick to questions and answers, I think it would be very helpful if you did less editorializing.

14:50:52 MR. KITTREDGE: Yes, sir.

14:50:52 BY MR. KITTREDGE:

14:50:56 Q. At three and a half inches on this chart it starts to drop off?

14:51:00 A. When you get to within about two and a half inches of the end, it starts to drop off.

14:51:05 Q. And at three and a half inches there is going to be one, two, three LEDs to the right, but only three LEDs to the right?

14:51:16 A. Yes. That's a model. It's not a real thing. And it's showing what happens when you are -- what the light intensity is and indicating that, as you approach the end, the model shows, as you approach the end, the light intensity goes down. This is no contribution of LEDs beyond the end; it's the end. Okay?

14:51:38 Q. And if I'm understanding this, if I take -- let's take the center of it at zero.

14:51:42 A. Yes.

14:51:45 Q. You've got uniform luminescence. This center LED, it's giving -- this illuminance measurement you have here, the point of the center LED, is getting light contribution from three LEDs to the right and three LEDs to the left.

14:51:59 A. You would have to put up the previous figure to know exactly how many, but the concept is right.

14:52:03 Q. I just drew that conclusion based on where it stops to drop off. It's a rough approximation.

14:52:08 A. Yes.

14:52:13 Q. And that's, again, the surface on the bottom of the piece of plastics that Fallon uses on its sign?

14:52:23 A. That's a simulation of the light guide using LEDs that Fallon uses in its sign at the same distance from the light transmitting member that Fallon uses on its sign, yes.

14:52:34 Q. And in your expert opinion, that's a pretty fair representation of the luminescence and uniformity of luminesce that is achieved at the bottom surface of the plastic that Fallon uses?

14:52:45 A. It should be close, yes.

14:52:49 Q. Okay. It may not be the same total number, but

the uniformity should be about the same?

14:52:53 A. It should be about the same.

14:52:58 Q. Now, the patent requires that the piece of plastic preferentially scatter light; correct?

14:53:03 A. Yes.

14:53:07 Q. Did you do anything to measure how much scattering you get from the piece of plastic, notwithstanding what you already have before you get to the piece of plastic?

14:53:22 A. I only did the measurement with a single LED. And those light patterns are indeed dominated by the elliptical light pattern of the LED. I did no additional measurements on the scattering of the plastic.

14:53:35 Q. And that would be that -- again, that picture you took where you just a shined a single LED light through it and looked at it?

14:53:43 A. Yes.

14:53:57 Q. Okay.

14:53:59 A. Can I go back a second?

14:54:00 Q. Sure.

14:54:02 A. I don't want to change what I said. I want to question what you said. The patents I'm not sure require the plastic itself to preferentially scatter the light. They talk about the combination of the plastic, its shape with a curved light transmitting member with the LEDs mounted beneath so as the light is preferentially scattered, okay? And whether that

requires the plastic itself to do the scattering is an interesting question. I don't believe it does. It requires a device to preferentially scatter, which it does.

14:54:43 Q. In your opinion it does?

14:54:45 A. In my opinion it does.

14:54:47 Q. In your opinion the claims don't require the plastic to preferentially scatter? Is that what I'm understanding?

14:54:53 A. I would want to look at that claim one more time, but I'm questioning the way you stated the requirement of the claim.

14:55:15 Q. Well, let's do that. Pull up Exhibit 1. And Column 10. Just so we're clear on the record, Dr. Roberts, you recognize Exhibit 1 as the '238 Patent?

14:55:30 A. Yes.

14:55:35 Q. And can we pull up the first paragraph of Claim 8, expand that. Is this the part of the claim we want to talk about?

14:56:04 A. Well, I'm reading it. Well, when configured with a curved light emitting surface, it does indeed preferentially scatter light along the elongated direction of the device.

14:56:20 Q. Well, I just want to ask about --

14:56:24 A. And the lateral curved light emitting surface comes before the requirement for preferential scattering. So

I would read that as, in the configuration of the devices. Which means not a flat piece of plastic, but this curved piece of plastic.

14:56:37 Q. Okay. I want to make sure I understand what you're saying. You read this claim as it doesn't have to be the plastic piece that preferentially scatters light?

14:56:51 A. No, that one does call for the plastic to preferentially scatter light, and with a curved light emitting surface, it would do that.

14:56:58 Q. So at least this claim, the way I asked my question was okay?

14:57:08 A. Yes, it was.

14:57:28 MR. KITTREDGE: Your Honor, I would like to hand the witness Defendant's Exhibit 728 A.

14:57:39 THE WITNESS: Thank you.

14:57:39 BY MR. KITTREDGE:

14:57:43 Q. That's one of our Budweiser Bowtie signs. Let me rephrase it. Do you recognize what I've handed you, sir?

14:57:51 A. Well, all the labels covered with tape and I haven't seen the front yet, but I think I recognize it.

14:57:53 Q. Take a moment.

14:57:54 A. Yes, I do.

14:57:58 Q. And this is one of Fallon's Budweiser Bowtie signs. Go ahead and peel the tape back a little bit.

14:58:06 A. It does have a Fallon sticker on it, yes.

14:58:08 Q. Can you tell from looking at that from the outside whether it's the newer one that you analyzed later in your study or a later one?

14:58:18 A. I believe it's the newer one because it has colored plastic for the accent, and the older one had white plastic on the bowtie.

14:58:28 Q. I believe it's the new one also, but I can tell if we can take it an apart. Can I have it back.

14:59:17 If I could hand this back to him, I guess. Do you recognize this as the new Bowtie sign that you described in your testimony yesterday?

14:59:24 A. I do.

14:59:26 MR. KITTREDGE: Your Honor, can the witness step down and hold this up for the jury for the next couple of questions?

14:59:34 THE COURT: I've given liberty to every witness to do that.

14:59:41 THE WITNESS: What would you like for me to do?

14:59:41 BY MR. KITTREDGE:

14:59:43 Q. Come over here now. And you can see where we take away the set of LEDs, the letter portion. I you can see transmissive portion that form the letters in the part of the sign?

15:00:03 A. Yes.

15:00:06 Q. And these do not have sidewalls? You testified

to that yesterday?

15:00:08 A. Testified to that yesterday, exactly.

15:00:10 Q. I heard that. I just wanted to make sure that's clear. So if we cut off the sign except for the letters, that part of the sign would not infringe the patent?

15:00:20 A. That's correct.

15:00:28 Q. Now, if we look at the part -- the Bowtie part, you did believe that part had sidewalls?

15:00:33 A. It does have sidewalls.

15:00:37 Q. And also there is a gap between the plastic piece, the light transmitting piece, and the sidewalls, isn't there?

15:00:46 A. That's true.

15:00:48 Q. And that gap hasn't changed your opinion as to whether there are sidewalls.

15:00:51 A. Changed my opinion on some claims, not on other claims.

15:00:52 Q. Some of the claims require it to abut?

15:00:53 A. To abut.

15:00:57 Q. But that one, those claims, this product does not abut?

15:01:03 A. No, right, it does not abut.

15:01:06 Q. However, it has in housing -- what did you say after that?

15:01:10 A. To those claims that require the sidewalls to

abut the light transmitting member, it does not infringe those claims. There are other claims that do not require the sidewalls to abut the light transmitting member, it does infringe.

15:01:28 Q. I thought that was your testimony. I wanted to make sure I understood it.

15:01:33 A. Okay.

15:01:39 Q. I think you can sit back down, sir.

15:01:40 A. Okay.

15:01:43 THE MARSHALL: Do you want this back?

15:01:45 MR. KITTREDGE: Yes, I'm going to tape it back up and then offer it into evidence.

15:02:04 Your Honor, I would like to offer Exhibit 728 A into evidence.

15:02:20 THE COURT: Without objection, it will be admitted.

15:02:37 BY MR. KITTREDGE:

15:02:42 Q. You testified somewhat yesterday, Dr. Roberts, about the uniformity of appearance, or something to that effect?

15:02:50 A. Yes, I did.

15:02:52 Q. And you believed some of the claims have a requirement that has to be judged by the person looking at the sign?

15:03:01 A. The word "appears uniform" requires a human observer to make that termination.

15:03:10 Q. And you decided the "appears uniform" based on your personal opinion as a human observer?

15:03:14 A. I'm sorry, ask your question again.

15:03:17 Q. When you look at Fallon's signs and decided that they appear uniform, you used your personal opinion as a human observer?

15:03:28 A. Yes.

15:03:32 Q. If somebody disagrees with you, how do we decide whose opinion is right for infringement?

15:03:42 A. Well, that's one reason we have the jury. The jury can be shown the signs. They are also human beings, they can observe the signs and make a human judgment of whether the signs appear uniform.

15:03:57 Q. Okay. And so this subjective test that you believe is required by the claims, we decide it by a democratic process.

15:04:04 THE COURT: No, sir, it's going to be based on all of the evidence. Now, have you got something else?

15:04:11 MR. KITTREDGE: No, that's fine. I believe I am done, sir.

15:04:33 THE COURT: Any redirect for this witness?

15:04:36 MR. SCRUTON: Your Honor, we have a number of --

15:04:40 THE COURT: Any redirect examination of this witness?

15:04:42 MR. SCRUTON: We have a number of exhibits to offer from yesterday, but beyond that, I don't have any redirect,

Your Honor.

15:04:51 THE COURT: You may step down. Is this witness free to go?

15:04:53 MR. SCRUTON: Pardon me?

15:04:56 THE COURT: Is this witness free to go?

15:04:58 MR. SCRUTON: I believe so.

15:05:00 THE COURT: You are free to go.

15:05:00 THE WITNESS: Thank you, Your Honor.

15:05:02 THE COURT: You may call your next witness.

15:05:06 MR. SCRUTON: May I offer the exhibits? Or do you want to take care of that?

15:05:11 THE COURT: You may call your next witness.

15:05:14 MR. PRICE: Your Honor, our next witness is Walt Bratic. But we have some issues that need to be discussed with Your Honor before he can take the stand.

15:05:22 THE COURT: Ladies and gentlemen of the jury, we're going to excuse you for a few minutes. Please don't discuss the evidence amongst yourselves until you receive all of the evidence, the argument of counsel, and the charge of the Court.

15:05:47 (Jury out.)

15:05:52 THE COURT: If counsel could please answer the Court's question when I ask it, it would really help. We can move exhibits at the end of the day. I'm trying to maximize the jury time.

15:06:08 Yes, sir, what are the objections on Bratic?

15:06:11 MR. PRICE: They basically fall into four fold, Your Honor. First of all, it goes to forecasting of damages.

15:06:18 THE COURT: Give me the deposition and the page number and the line.

15:06:21 MR. PRICE: I'm sorry, these are not deposition issues, Your Honor. This relates to the expert narrative, and it basically --

15:06:28 THE COURT: Give me the narrative and give me the page and paragraph.

15:06:39 MR. PRICE: I can. Well, this goes to multiple parts, the first part. So I don't know how to direct it, Your Honor, to be honest with you. Mr. Bratic, based on -- let me back up. We were supplied damages data from January 2005 to September 2008. And Mr. Bratic calculated royalty based on that sales data. The defendant did not supplement that data, so Mr. Bratic in his narrative forecasted the damages from September 2008 to April 2009 based on the data that had been previously produced. They have objected to that. That is the first point, Your Honor.

15:07:29 The second objection goes to prejudgment interest. Obviously, now that we are going to trial, we asked Mr. Bratic to include a prejudgment interest calculation in his narrative. They have objected and said that issue is for Your Honor to decide. And we would agree that that generally is a

Court decision. Obviously, this is something that can be dealt with in the verdict form if Your Honor desires. And if Your Honor would rather have that after the trial, we can take it up by motion. But that's the second issue.

15:08:03 The third issue, Your Honor, goes to certain deposition quotes and exhibits that are referenced in the narrative. Both of the damage experts added deposition quotes that were not included in their original report. I have offered to the other side to either strike them both or keep them both. They contend, however, that Mr. Bratic should not be able to do so, but theirs should, because a particular deposition of Tim Fallon had not been reviewed by Mr. Bratic at the time of his original report, which was much closer in time to the end of discovery.

15:08:39 Finally, Your Honor, we had two damages reports.
15:08:44 Obviously, ours came first in early December, then theirs in late January. We offered our damages theory in our December report. And then in their end of January report they offered their damages theory and also criticized Mr. Bratic's.

15:09:02 I asked Mr. Bratic to prepare a separate rebuttal narrative to do a point/counterpoint with respect to the other gentleman's theory Mr. Degen. They have objected, citing the local rule, which I know Your Honor also cites, that generally speaking we do not have rebuttal witnesses without leave of Court.

15:09:24 They have raised this issue, and I recognize there is a local rule. And I'm respectfully requesting leave of Court. Your Honor, in this situation if we simply had two damages reports that were issued on the same day, they had their theory and our theory, I'm completely on board.

15:09:44 In this instance they get to offer their report, criticize our damages theory, whereas our expert does not have the opportunity to explain why their theory is incorrect.

15:09:55 We believe that point/counterpoint is a fundamental fairness in this situation and warrants leave. We did supply written narratives, both in direct and rebuttal form, Your Honor, along with the other expert narratives.

15:10:09 Those are the four points, Your Honor, that have been raised and do affect how we put this on. I would raise one last issue on Number 4. If Your Honor would be willing to grant leave in this circumstance, we are willing to do it however you would like, bring him back in rebuttal or even have him do both today, direct and rebuttal. We can do it in an anticipatory manner if that would be more efficient. Thank you.

15:10:44 MR. LIPSHIE: Your Honor, we're not trying to do anything unfair. This rebuttal report was filed, and it all, with one exception, what goes beyond what was in Mr. Bratic, who is their damages expert, within the four corners or in his original report if at all.

15:11:06 Now, they could have asked for leave to file a supplemental report. We did that with other experts and agreed upon it, and they were filed without objection. That didn't happen.

15:11:15 Furthermore, Your Honor entered a case management order number two which specifically said, there will be no expert rebuttal reports filed without leave of Court. And they didn't ask. Instead, they just, after the trial starts or we come in for trial, they serve this rebuttal expert report for their damages witness, which is not mentioned at all, this subject matter, in his original report.

15:11:46 Now, they should have come in earlier. It violates the local rule. It violates Your Honor's specific court order. We had a mechanism to supplement other experts because discovery closed and they filed their reports before. They didn't ask us; they didn't ask Your Honor. They just did it.

And this is clear that no -- everybody knows in Your Honor's court expert rebuttals don't get filed, the reports, unless you've got leave of Court or unless they are included in the original report. And they didn't do that. And it would be prejudicial to the defendants.

15:12:23 THE COURT: Well, I think on my standard case -- I think what's is usually in it, there is a period for supplemental expert reports.

15:12:34 MR. PRICE: In this instance, Your Honor, we had two

damages deadlines -- ours in December, theirs in late January. There was not a supplemental deadline.

15:12:47 MR. LIPSHIE: Now, we're in trial at the end of April, and now we didn't get it. And it hasn't been touched upon.

15:12:54 THE COURT: When did you get it? When did you serve their supplemental --

15:13:00 MR. PRICE: When we all filed them last Tuesday. I will point out, Your Honor, this particular one was sent to them, there were exhibits and PowerPoint slides. Apparently the narrative didn't go with them, and they e-mailed back and said, we didn't get the narrative portion. We immediately got them to them. So there was a day or so lapse between this particular one and the others. As soon as they brought it to our attention, we did render that. And we apologize for that.

15:13:24 MR. LIPSHIE: The very end of last week, Your Honor, it just arrived.

15:13:28 THE COURT: The way things are going, we're going to be here for a while. Anything else?

15:13:44 MR. LIPSHIE: Does that mean Your Honor is inclined to allow --

15:13:47 THE COURT: No, sir, doesn't mean anything. Is there anything else? He raised four points. You didn't supplement?

15:13:53 MR. LIPSHIE: Right.

15:13:56 THE COURT: Why did you not supplement? Or do you dispute that you didn't supplement your interrogatory answers

on the damages?

15:14:04 MR. LIPSHIE: Oh, I'm sorry, sir. On the -- their estimate of last period of damages, our position on that --

15:14:11 THE COURT: Well no, no, answer my question. He says you did not provide supplementation on the damage discovery matters. So they have to forecast based on past data that you gave them. Do you dispute that you --

15:14:25 MR. LIPSHIE: No, sir.

15:14:26 THE COURT: You don't dispute that you didn't supplement?

15:14:31 MR. LIPSHIE: They weren't ready for the last period. Our position is, the expert, to apply his royalty rate, if the jury buys it, they should apply it to the sales they have gotten, and then you just add that percentage of sales.

15:14:47 THE COURT: Maybe we have a failure to communicate, Mr. Lipshie. You didn't supplement?

15:14:50 MR. LIPSHIE: No, sir.

15:14:53 THE COURT: Any of the sales data since your last discovery request?

15:14:57 MR. LIPSHIE: Since the close of discovery, yes, sir.

15:14:59 THE COURT: Well, supplementation says reasonably close to trial you've got to supplement.

15:15:06 MR. LIPSHIE: And they didn't supplement, either.

15:15:07 THE COURT: No, that wasn't my question. My question is, did you supplement.

15:15:11 MR. LIPSHIE: No, sir. I tried to answer that. The numbers aren't ready yet. We have not supplemented yet.

15:15:20 THE COURT: For what period have you not supplemented?

15:15:24 MR. LIPSHIE: It was last October through 3/31.

15:15:30 MR. PRICE: It was roughly October 2008 until now.

15:15:33 THE COURT: And the second part of his -- what about the second part?

15:15:38 MR. LIPSHIE: It's prejudgment interest, Your Honor.

15:15:41 THE COURT: Prejudgment interest. We'll deal with prejudgment interest later. We'll see what the jury verdict is.

15:15:47 MR. LIPSHIE: Their expert has in his statement ten percent, because the lawyers told them there was a Tennessee statute.

15:15:53 THE COURT: Well, the Court will take care of prejudgment issues.

15:15:57 MR. LIPSHIE: That's the province of the Court to award that, and there's federal statutes and case law. And That's our position on that. The jury ought not to hear.

15:16:08 THE COURT: I'm tell you, that's gone. Do you want to go on to number three?

15:16:12 MR. LIPSHIE: I think I've addressed each of the points that he raised.

15:16:16 THE COURT: Anything further?

15:16:17 MR. PRICE: The only thing further, Your Honor,

depending upon your ruling, for example, prejudgment interest, I do need to change out a few of the slides. And we'll need just a few more minutes to do that.

15:16:30 THE COURT: All right. I will allow the expert to testify based on -- to forecast based upon past data given the lack of supplementation. The prejudgment issue will be addressed by the Court in its judgment based upon what the jury verdict says.

15:16:52 I will allow the rebuttal testimony of the plaintiff's experts to address the defendant's damages theory, and the defendant's damages expert will have a chance to respond to what the plaintiff's expert said. Is there anything else?

15:17:11 MR. PRICE: The only other thing was the deposition in quotes that --

15:17:17 THE COURT: I didn't think Mr. Lipshie addressed that. Anything on deposition quotes?

15:17:23 MR. LIPSHIE: The deposition quotes, as I understand -- oh, on these experts.

15:17:29 MR. PRICE: That's correct, sir.

15:17:30 MR. LIPSHIE: There is a distinction. It's not the same. It's apples and oranges. Their expert, their damages expert, did not review the deposition of Tim Fallon when he gave his report. Our expert, they are saying also, quotes the deposition. And his report says he has reviewed the deposition that he cites to. So that is apples and oranges.

15:17:52 THE COURT: Well, before he testifies, has he reviewed it?

15:17:54 MR. PRICE: Yes.

15:17:56 THE COURT: Well, what's the issue?

15:17:59 MR. LIPSHIE: That's probably subsumed in Your Honor's ruling that he can file his rebuttal report, because it's in there.

15:18:04 THE COURT: If there is a specific objection, I will deal with the specific objection. Now, if he has since assured the parties that he has read that deposition, I will allow him to quote it.

15:18:16 MR. LIPSHIE: Well, I think Your Honor has been allowing him to put it in the rebuttal.

15:18:21 MR. PRICE: Let me be straight. There are some quotes both in -- from the Tim Fallon deposition, both in what we divided into a direct and rebuttal. So I don't want to suggest to Your Honor that it doesn't fall into both parts.

15:18:38 THE COURT: Well, the core issue was whether the expert had actually read the depositions. If he has since read the depositions, I will allow him to do it in his report here.

15:18:48 MR. LIPSHIE: And I assume that the corresponding objection you have made to our damages expert on inclusion of the deposition quotes that he had written --

15:18:58 MR. PRICE: Absolutely. I agree that if we get to do

that, they do also.

15:19:02 MR. LIPSHIE: What's good for the goose.

15:19:05 THE COURT: It's the same principle.

15:19:06 MR. PRICE: Yes. Absolutely, Your Honor.

15:19:06 THE COURT: Anything else?

15:19:10 MR. PRICE: That's it. We will need to change out the prejudgment interest.

15:19:12 THE COURT: How much time do you need?

15:19:14 MR. PRICE: If I could have, please, five minutes, that would be great.

15:19:16 THE COURT: All right. You'll have five minutes.

15:19:18 MR. LIPSHIE: Last question, Your Honor. Do you intend to do the whole thing at once or split it up?

15:19:24 MR. PRICE: I apologize, good point. Would you like us to do both the direct and rebuttal today? We can. Or we can bring him back.

15:19:32 THE COURT: Let's do it all today.

15:19:39 MR. PRICE: That would be fine. I think that would be adequate.

15:32:24 (Recess.)

15:32:27 THE COURT: Any other matters before we bring the jury in?

15:32:32 Bring the jury in, Mr. Marshal.

15:33:00 (Jury in.)

15:33:06 THE COURT: You may call your next witness.

15:33:10 MR. PRICE: Your our next witness is Walter Bratic.

15:33:11 THE COURT: Mr. Bratic, if you will come around, please, sir.

15:33:28 (Witness sworn.)

15:33:28 COURT REPORTER: Please state your full name for the record and spell your last.

15:33:31 THE WITNESS: My name is Walter Bratic, and the last name is spelled B-r-a-t-i-c.

15:33:54 MR. PRICE: Walter Bratic is a senior consultant of CRA International. A slide of Mr. Bratic's qualifications will be displayed. If you will display Exhibit TX 32 A1.

15:34:14 Mr. Bratic is a certified public accountant, licensed to practice in the state of Texas. He has provided financial consulting services such as those he is providing in this case for over 25 years. He has worked on a broad range of intellectual property subject matter for over 30 years. He has testified in state and federal courts and in other tribunals related to intellectual property issues, including economic, financial, accounting and business matters involving damages, technology trends, and industry licensing practices.

Mr. Bratic has an MBA from the University of Pennsylvania's Wharton School of Business. He is a Certified Public Accountant, or CPA. Mr. Bratic is also a Certified Licensing Professional, which means he has met requirements promulgated by the Licensing Executive Society for

Professionals that are involved in negotiated licenses. He drafted his first licensing agreement in 1975. In 1980 he joined Advanced Energy Supply Company as CFO and Treasurer. As part of that job, Mr. Bratic was responsible for negotiating a number of licenses, both as a licensor, that is, where his company was licensing its intellectual property or IP to someone, and as a licensee where his company was licensing IP from someone else.

15:35:18 15:35:40

Then over the 20 plus years of his career, Mr. Bratic did licensing work, one type or another, for literally hundreds of clients. Mr. Bratic has been appointed by courts to serve as an expert. Mr. Bratic is also a guest lecturer on intellectual property and an author of articles on licensing and evaluation. He is also on the editorial board of Managing Intellectual Property and Journal of Commercial Biology.

15:36:03

We now offer Mr. Bratic as an expert in damages, and, with the Court's permission, ask him to provide his opinions and testimony to the Court and the jury.

15:36:10

THE COURT: You may do so.

15:36:13

THE WITNESS: Good afternoon. My name is Walt Bratic. And my last name is spelled B-r-a-t-i-c. And I'm from Houston, Texas. I'm going to be talking about the damages in this case, and I prepared some slides to help assist with that discussion.

15:36:33

ILight contends in this case that Fallon has infringed

one or more claims of its patents. I have been retained in this case to evaluate whether iLight has sustained any economic damages, assuming that the iLight patents are valid and infringed.

15:36:49 The three specific iLight patents involved in this case are the '238 Patent, which issued on January 15th, 2003; the --

15:37:00 MR. PRICE: Correction. That's actually July.

15:37:07 THE WITNESS: I'm sorry, July 15, 2003, thank you. The '262 Patent, which issued on October 11, 2005; and then finally, the third and last patent, the '970 Patent, which issued on March 13, 2007.

15:37:25 So I will often use a shorthand referring to these patents as the iLight patents or the patents-in-suit when I talk about patent damages. All of the iLight patents are entitled The Illumination Device for Simulation of Neon Lighting. For purposes of my analysis --

15:37:41 MR. PRICE: I'm sorry. We have to display an exhibit. You need to say that out loud.

15:37:47 THE WITNESS: I'm sorry. Sure. Would you please display Exhibit TX 32 B. Okay. So there is a summary of the patents. One of the patents-in-suit, '238. All three patents are titled or entitled The Illumination Device for Simulation of Neon Lighting.

15:38:16 By the way, I don't know if this is working, so I'm

going to lean forward. Can everybody hear me? Okay.

15:38:18 For purposes of my analysis, I have been asked to assume that the iLight patents, all three of them, are valid and enforceable, and that one or more claims of those patents had, in fact, been infringed by Fallon. The number of claims asserted in this case or ultimately found to infringe would not change my analysis or conclusions because even infringement and of one claim of one patent is still infringement.

15:38:50 ILight has alleged in this case that Fallon's manufacture and sales of certain LED sign products infringe the iLight patents. I will refer to the Fallon products that are accused of infringing as the "accused products". Fallon's first sale of an accused product was made to Sam's Club on or about January 29, 2005. This was the Xenon Oval LED Open sign. And you can see I believe in TX 32 C.

15:39:23 MR. PRICE: That's not a display.

15:39:26 THE WITNESS: All right. So, for the purposes of my analysis, I assumed that January 2005 would have been the date of first infringement of the iLight patents.

15:39:37 Now, my understanding is that iLight patents generally relate to lighting devices that simulate neon lighting, and that the patents involve the use of optical waveguides and high intensity low voltage light sources such as LEDs.

15:39:56 I also understand that the patented devices are very

well suited for signage and advertising uses.

15:40:01 I would like now to talk about some of the information that I used in consideration with my work in this matter. And I work for a company called CRA International that specializes in financial analysis, including particularly analysis of economic and financial issues like the ones that are involved in this case with respect to patent damages.

15:40:24 I normally work with a team of professionals. In this case I had two or three people assisting me, working under my direction and supervision. We obtained and reviewed a wide variety of documents during the course of this case. And if you will display TX 32E, I will run through an overview of the kind of business records I looked at in this case.

15:40:59 Okay. So what I did is obviously I reviewed the patents-in-suit, the three patents, just from a general understanding. I'm not a technical person. I relied on Dr. Roberts for my understanding of the technology. I reviewed iLight's various financial documents, records and business records that iLight made available in this case. I also reviewed Fallon's financial documents and business records that they also made available for my inspection and analysis.

I reviewed a variety of documents produced in this case, some interrogatory legal type documents, memos, correspondence, depositions of various witnesses who were taken in this case, and in most cases when there is a

deposition then there would be exhibits to those depositions. I also reviewed and analyzed those.

15:41:44 THE COURT: Hold on a second.

15:41:46 Ladies and gentlemen of the jury, interrogatories are written questions, usually from one party to another party, answered under oath, and may be considered as evidence.

15:41:54 All right, sir.

15:41:56 THE WITNESS: Thank you, Your Honor. I also, as I just mentioned a moment ago, I interviewed Dr. Roberts, who just testified before me, and I interviewed some iLight personnel, Mr. Cleaver and some others, and an industry expert which I will discuss later, Mr. Kallmes. I also then prepared an expert report in this case, and I also reviewed and analyzed expert report of Fallon's damages expert, who I understand will probably testify here possibly early next week, and that's Mr. Degen.

15:42:32 That's a big picture overview of several boxes of documents I went through to perform my analysis and reach my opinions.

15:42:42 Now, part of the people --

15:42:48 If you can go to TX 32 F, please. I will just explain that these are a listing of the various documents that I reviewed in this case. Each document that gets produced in a lawsuit like this has a little notation on the bottom, a special unique number for that document. So this is just an

example of the many documents I went through in this case.

15:43:13 Now, my team and I interviewed, as I said, for Mr. Cleaver, the president and cofounder of iLight; we interviewed Mr. Callahan, the President and CEO of iLight. I interviewed Mr. Kallmes, who was a former director of licensing at a company called CK, Color Kinetics, which you will hear about a little more. And then finally, as I said already, I interviewed Dr. Roberts, who has his own company, Roberts Research and Consulting.

15:43:43 So my opinions in this case are based, in this case are based on all of the material I considered, reviewed and analyzed and the interviews I conducted. And of course, I coupled that with my education, training and experience in my work in licensing of intellectual property for over 30 years and my analysis of patent damages in many, many cases over the years.

15:44:07 Now, before we talk about the details of my work, I would like to program you with an overview, a summary, of what my actual opinions are regarding damages in this case. And under the patent law, as I understand it, the patentee can ask for lost profits if they can substantiate that, or reasonable royalties.

15:44:27 In this case, I determined that reasonable royalties were an appropriate measure of damages. And I have quantified or calculated the amount of reasonable royalty damages that

would be due and owing iLight if you were to determine that the iLight patents were, in fact, -- are valid patents and have, in fact, been infringed by Fallon.

15:44:51 As part of the analysis of patent damages for reasonable royalties -- and think of reasonable royalties in the context of rent. You go on somebody's property, let's say you want to rent a farm or a house, you want to use it to grow crops, or to live in a house, you would pay rent to the owner of that house.

15:45:12 Well, royalties in patent damages are just like that. The patents are the property, and the royalty is what somebody pays for the use of that property. So in this case, in the patent cases, it's typically called royalty damages, which would be the same as paying rents on the use of somebody's property.

15:45:33 MR. PRICE: Mr. Bratic, in our local rules, the experts have to actually read from the narrative. I know that may be something you are not accustomed to doing. But that's the rules we have to follow.

15:45:43 THE WITNESS: Okay. All right. With that, I will talk about the hypothetical negotiation. Now, in determining reasonable royalty damages, I am asked to assume that iLight and Fallon sit down together, and they negotiate a license for Fallon to use or have the right to practice the iLight patents. And at the time of first infringement, which I've

established to be January 2005, the first sales to Sam's Clubs by Fallon, this is when the hypothetical negotiation would occur for a hypothetical license. And my job, and in fact, Mr. Degen's job, is to determine what terms iLight and Fallon would have agreed to under that hypothetical negotiation.

15:46:30 Now, if you could turn to Exhibit TX 32 G as in George.

15:46:36 Okay. So here is a depiction of a hypothetical negotiation. You have on the one hand iLight, which owns the patent, and you have Fallon, which wants a license to the iLight patents, on or about January 29, 2005 to permit them, them being Fallon, to give them the right to sell to Sam's Club and other customers from that point forward during the life of the patent.

15:47:04 I will talk more about this hypothetical negotiation a little later. But the point for now is that we try and determine the terms the parties would have agreed to if they had sat down and negotiated an agreement.

15:47:17 The hypothetical negotiation would have taken place in or around January 2005, when Fallon is first alleged to have infringed the '238 Patent by introducing the accused products into the market. Although the '238 Patent would have been the only patent issued at the time of first infringement, it is my opinion that that hypothetical license would have included the other two iLight patents, because Fallon would have ultimately

required a license to all the iLight patents in order to sell the accused products.

15:47:52 In my experience, parties negotiating a license typically include the rights to future patents that would cover the products at issue. Also, in January 2005 the parties would have been aware that the patent application which resulted in the '262 Patent was pending at the time. As I will discuss in more detail later, my analysis takes into account several different considerations. These include the benefits from using the iLight patents, the licenses which iLight entered into, the royalty rates in the lighting industry, the success of the products using the technology covered by the iLight patents, the profitability of the accused products, and the relative bargaining positions of iLight and Fallon at the time of the hypothetical negotiation, as you see up there on the screen.

15:48:54 Can you please turn to TX 32 H.

15:48:59 Okay. In determining damages based on hypothetical negotiation, we determine a royalty rate that the parties would have reached through the hypothetical negotiation, which is often expressed as a percentage of sales. And we multiply the royalty rate times the royalty base. And you will see that formula up here. You have a royalty rate, which would be based on what I am about to tell you about, the Georgia Pacific factors, times the royalty base, which is the sales of

the accused infringing products. And when you do the multiplication, you get the reasonable royalty amount that would be due and owing.

15:49:41 Now, I have also prepared a chart listing Fallon's accused products that I have considered in my analysis.

15:49:50 So if you will please show TX 32 I.

15:49:53 Okay. This is just a list of various products Fallon sold that I was asked to assume infringed the iLight patents. So I took the information provided with respect to their sales in performing my analysis.

15:50:08 Now, I have prepared a slide summarizing my damages calculations.

15:51:01 And if you will show please TX 32 J. If you will bear with us, we just have two that we have to present.

15:51:14 MR. PRICE: Your Honor, if it will make it easier, I will just hand the slide to the witness. He can just speak from that.

15:51:20 THE COURT: All right.

15:51:21 MR. PRICE: Thank you.

15:51:34 THE WITNESS: Thank you. Okay. I'm going to show the jury. I don't know if you can see it.

15:51:39 THE COURT: You can step down and walk in front of the jury box.

15:51:48 THE WITNESS: Can I do that? Thank you, Your Honor.

15:51:55 So this is the formula that was on the screen before,

royalty rate times royalty base equals reasonable royalty. So what I determined, based on my analysis in this case, is that the royalty rate in this case, seven percent, multiplied by approximately $35.4 million in sales of the accused product, from January 2005 through April 2009, this month in trial, as long as we're in trial. That will give you -- seven percent times $35.4 million equals $2.5 million. So the amount of reasonable royalty in this case is $2.5 million.

15:52:58 That was thirty -- ?

15:53:01 Q. 32 J.

15:53:03 A. Okay. Great. So, as I was explaining, based on my review and analysis of documents and information produced in this case, the deposition testimony, interviews I would have conducted, my education, training and experience in intellectual property matters, it is my opinion that the hypothetical negotiation between iLight and Fallon in approximately January 2005 for a license to the iLight patents would have resulted in a reasonable royalty rate of no less than seven percent of sales of the accused products.

15:53:35 The royalty base is approximately $35.4 million for the period from January 2005 through April 2009. That's this month. Fallon only produced its accused sales through September 2008, so I estimated the accused sales from October 2008, last fall, through this month, April 2009, based on the monthly average of accused sales that were sold during the

first nine months of 2008. By applying the seven percent royalty rate in the chart I just showed you to Fallon's sales that are alleged to infringe the iLight patents, the reasonable damages are approximately $2.5 million, excluding prejudgment interest.

15:54:31 Now, I prepared an updated Exhibit 32 K. Are we going to show this? We don't need to, I guess.

15:54:37 MR. PRICE: No, that's okay.

15:54:40 THE WITNESS: We'll jump ahead. There are details in my report that show these calculations.

15:54:56 Can you show TX 32 N, please. Okay.

15:54:59 Now, what I've got up here are -- this slide contains some of the more relevant factors I considered in determining the seven percent royalty rate. I considered -- and it says that chart is in support for the seven percent royalty rate. I considered the specific license, which I will talk about in a little bit, which between iLight and a company called Color Kinetics, which is called CK. And there were rates, royalty rates, in that agreement that talked about a seven percent -- excuse me, a nine percent royalty rate to be paid by iLight to CK on competitive products, and a royalty rate of five percent to be paid by light to CK on lighting products that were considered noncompetitive products.

15:55:47 I also considered interviews conducted of Mr. Kallmes, his experience at Color Kinetics, the company that just

licensed the above transaction to iLight. And in his experience, the industry rates in his opinion were five to nine percent. That's why he used those rates in the iLight CK license.

15:56:08 I looked at Fallon's profit premium -- which I will explain a little more what that is -- on the accused products. And they enjoyed a profit premium, meaning a premium on the accused products compared to their non-accused products -- of in the range of 14.3 to 15.3 percent. These products were more unprofitable than Fallon's other products.

15:56:31 And finally, based on those data points and other information I considered, I concluded it was appropriate that a royalty rate in this case be seven percent.

15:56:41 Now, let me give you a little background about the companies. ILight -- first, I want to talk about iLight. It was founded in the year 2000. It is an innovative company and a leader in designing leading edge LED lighting. ILight designs, manufactures and markets LED linear luminaries for commercial markets. ILight currently targets four markets: The architectural trim and accent lighting; signage; gaming; and point of purchase, which is also called POP. You may see references to that.

15:57:13 ILight produces two product lines. The first is called Plexineon Color Series, which is a linear LED lighting system which comes in seven very bright colors. ILight's

second product line is the Plexineon light series, which is a linear LED lighting system with three Kelvin white temperatures. For simplicity, I will refer to both of these products as Plexineon. Plexineon is discussed in more detail later, but my analysis takes into account several different considerations. Those include the benefits from using the iLight patents, the licenses which iLight entered into, royalty rates in the lighting industry, the success of the products using the technology covered by the iLight patents, and the profitability of the accused products. And also the relative bargaining positions of iLight and Fallon at the time of the hypothetical negotiation back in January 2005.

15:58:22 Could you please show TX 32 H. We already did that. I'm sorry. I got the pages -- some something happened here in the numbering system. I don't have a Page 7.

15:58:34 MR. PRICE: May I approach, Your Honor?

THE COURT: Yes.

15:58:49 THE WITNESS: Thank you. They were stapled out of order. Sorry about that. Okay. Great.

15:59:04 Now, continuing. Plexineon uses the technology covered by the iLight patents, which blends the benefits of LEDs with the patented application systems. The patented technology allows iLight to create accent lighting products that are very bright and also have a smooth, even glow. It also provides exceptional durability and design flexibility

along with energy sufficiency and minimal maintenance requirements.

15:59:29 Plexineon received the prestigious Product of the Year Award in the lighting/architecture category at the Lighting Dimensions International show, which is the largest U.S. Conference and trade show for the entertainment industry.

15:59:46 According to Mr. Cleaver, who is the chairman, of course, and cofounder of iLight, the Lighting Dimensions International Product of the Year award for iLight means that lighting and entertainment industry professionals recognized and honored Plexineon as a breakthrough product with a multitude of creative uses.

16:00:05 Plexineon has been adopted by major national retail chains, architects and lighting designers to use on interior and exterior trim lighting for buildings, restaurants, stadiums, bridges, amusement park rides, television and stage sets, even cruise ships. With the enormous sales of Plexineon, iLight sales grew dramatically. They grew by about 930 percent -- that's a nine-fold increase -- from September 2004 through August 2006, over a two year period. ILight was ranked Number 84 on the list of the fastest growing private companies in the United States by Inc. magazine in August 2006.

16:00:50 As for Fallon, the other party to the hypothetical negotiation, it was established in 1987. Fallon provides

custom point of sale, general retail and decorative neon and neon alternative sign products. Fallon sells changeable menu message boards, clocks and tackers.

16:01:08 Based on an interview of Mark Cleavers, my understanding of Fallon's accused products consists of primarily of LED signs formed to customer specifications. Fallon started to sell LED Open signs to Sam's Club in January 2005. According to the documents produced in this litigation, Fallon's sales of the accused products to Sam's Club from January 2005 to September of 2008 accounted for almost 100 percent of Fallon's sales of LED signs in the retail market.

16:01:43 In 2006, Fallon competed with iLight and other companies to sell custom made LED signs to Anheuser-Busch. Ultimately, Fallon was successful in gaining Anheuser-Busch as Fallon's biggest customer for custom-made LED sign products. Although Fallon has made some modest sales of custom-made LED sign products to others besides Anheuser-Busch, based on the information provided to me, Anheuser-Busch is still Fallon's only significant customer for those products to this point.

16:02:21 Are we going to show TX? No, I didn't think so.

16:02:23 MR. PRICE: Just the ones that say display.

16:02:24 THE WITNESS: I understand. Thank you.

16:02:28 Fallon's annual sales of accused products increased significantly. Again, accused products are the same as infringing products for purposes of my analysis. They

increased significantly from $1.3 million in 2005 to $10 million in 2007. Sales of the accused products accounted for 7.6 percent of total sales in 2005, 50.5 percent of total sales in 2006, 56.4 percent of sales in -- total sales in 2007, and 60 percent of total Fallon sales in 2008.

16:03:09 Almost 100 percent of Fallon's accused products were sold to Sam's Club and Anheuser-Busch from January 2005 to September 2008.

16:03:21 Now, I'm going to turn now and talk a little bit about the patent technology covered by the iLight patents.

16:03:26 To develop an understanding of the nature and alleged benefits of the patented technology, I reviewed the iLight patents, and I discussed them with Dr. Roberts, who is iLight's technical expert in this case. The description of the patented technology in this section is provided only as context to my opinions. I have not been retained in this matter to offer any opinions regarding any technical or liability issues.

16:03:56 Q. (Mr. Price) Page 10.

16:03:59 A. Yes. I'm making sure I keep it in order.

16:04:00 It is my understanding that the iLight patents generally relate to an illumination device that is an effective simulator to neon lighting, which has an essentially uniform light intensity distribution pattern over the entire surface with maximum obtainable brightness. The best

available light source for this purpose is a string or strings of continuously mounted, essentially point light source such as LEDs.

16:04:27 An important feature of the patented invention is the careful spreading or distribution of the individual light patterns of the point light sources such that the light patterns are expanded along the long dimension of the light emitting surface and form an elongated light intensity pattern. Of equal importance is the minor axis of the elongated light intensity pattern extending substantially the entire circumferential width of the curved light emitting surface. The spreading of each of the light intensity patterns along the waveguide also permits overlapping of individual light patterns. This in turn enables the present invention to provide an observed uniform collective light pattern along and over the entire light emitting surface.

16:05:20 Illumination devices covered by the patented technology are rugged and resist breakage that normally would be expected for neon lighting counterparts in shipping and handling. LEDs as illumination sources use far less electrical energy and remain relatively cool to the touch, which allows for illumination devices covered by the patented technology to be used in places where heat generated by neon lighting products precludes its use.

16:05:49 Moreover, the light weight of the illumination devices

embodying the technology of the iLight patents facilitates mounting on support structures that could not support the relatively heavy weight of neon lighting and its required accessories, including high voltage infrastructure.

Finally, the covered illumination devices are flexible to use, allowing a tremendous variety of lighting techniques very difficult to obtain in neon lighting without substantial expense.

16:06:22 Now I want to turn and talk about patent infringement damages. I understand that damages in patent infringement are covered by -- governed by federal law. And I'm going to quote from that.

16:06:34 Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs fixed by the court.

16:06:52 A finding of patent infringement requires the patent owner to be compensated for the act of infringement in an amount no less than a reasonable royalty. A reasonable royalty is the royalty that would have been agreed upon in the hypothetical arms' length negotiation between a willing licensor -- in this case iLight -- and a willing licensee -- Fallon -- at the time of first infringement and at that hypothetical negotiation.

16:07:20 I'm now going to talk about reasonable royalties. The parties to the hypothetical negotiation would have assumed -- both parties, iLight and Fallon -- would have assumed that the iLight patents are valid and have been infringed by the licensee, or Fallon. The reasonable royalty analysis focuses on the economic and bargaining positions of the plaintiff and defendant at the time of the hypothetical negotiation and the likely outcome of such negotiation given their positions.

16:07:47 The first of the iLight patents to issue was the '238 Patent, which issued on July 15, 2003. As I noted previously, Fallon introduced one of its accused products in January 2005. Therefore, for the purpose of determining a reasonable royalty rate in this case, I assumed the hypothetical negotiation for a license to the iLight patents between iLight and Fallon would have occurred in or around January 2005.

16:08:19 In a well recognized case, a court case, federal patent court case, called *Georgia-Pacific*, certain factors were set forth to be considered by an expert when determining a reasonable royalty. These factors, commonly referred to as the *Georgia-Pacific* factors, are guidelines to evaluating the likely actions of the parties in their hypothetical negotiation. Based on the facts and circumstances of the case, the factors are not necessarily given equal weight, nor do I believe the factors are all-inclusive. Rather, the *Georgia-Pacific* factors are part of the overall analysis to

determine reasonable royalty damages.

16:09:01 I have grouped those 15 *Georgia-Pacific* factors into certain buckets, and I have a summary of those factors in TX 32 Q, if you could pull that up, please.

16:09:19 So these are what are called the *Georgia-Pacific* factors from a federal patent case tried about 30 years or so ago. And the Court in that case said, here's 15 factors to consider. Now, what I did is I grouped them in different buckets, because some of them are common, have things in common, so it made sense to group them in buckets.

16:09:42 So I have in far left-hand side a bucket called the Licensing Characteristics, which I will talk about; then another bucket talking about the nature and use of invention, which I will talk about also; then we'll talk about commercial success and the bucket and issues related to commercial success; we'll also talk about marketing and competitive position of the parties; and finally, we'll talk about experts in negotiations. And those are the 15 factors. And I just kind of grouped them to make them easier to work with.

16:10:13 So I'm going to start with the first bucket, which is called Licensing Characteristics.

16:10:20 So if you could bring up TX 32 S.

16:10:22 Q. I believe that would be R.

16:10:26 A. Oh, R, I'm sorry. You are right.

16:10:28 Q. TX 32 R.

16:10:31 A. So we're going to start with the first bucket which deals with licensing. And that's just highlighted there.

16:10:37 The first factor in this bucket is Royalties for the Patents-in-Suit. That's the first *Georgia-Pacific* factor. Under the first factor, I considered several iLight agreements involving LED lighting and lighting control technology in this matter.

16:10:53 Would you pull up TX 32 S, please. All right.

16:10:57 Now, this is one of the agreements I looked at, which was the iLight Identity Group Agreement. This was an exclusive distribution agreement from back in November 2002. And they executed an interim supply agreement in April 2003. And in September 2005, they end up with another agreement called the Image Works sharing point agreement. I looked at these two agreements, and I don't believe they are instructive to what the hypothetical negotiation would be about in this case, which is purely a bare patent license. Those two deals were business collaboration agreements. You won't have that in this particular case between iLight and Fallon. There is no collaboration.

16:11:57 MR. LIPSHIE: Your Honor, could I approach, please.

16:11:57 (Whereupon, a bench conference was held, out of the hearing of the jury, to wit:)

16:12:05 MR. LIPSHIE: He's repeating a phrase from the -- he

editorializes beyond the scope of his narrative. I have not interrupted up to this point, but he keeps going off.

16:12:16 MR. PRICE: I believe all he's doing is reading from the narratives. He's elaborating, but that's within the scope. I'm more than happy to instruct him to --

16:12:28 (Conclusion of bench conference.)

16:12:28 BY MR. PRICE:

16:12:43 Q. Just a reminder, our local rules do require you to read from the narratives. You can point things out, but you can't really elaborate much beyond what's up there. It's just the local rules.

16:12:52 A. Understood. Okay. Thank you for that clarification. Could you --

16:12:57 Q. To direct you to where you are now, you are going down on Page 13 beyond the blue to the Exhibit 32, TX 32 T.

16:13:06 A. Exactly.

16:13:09 Q. Okay. I just wanted to make sure we were on same page. Thank you.

16:13:12 A. Thank you. Okay. If you will bring that up. And one of the other agreements I looked at that was produced in this case was an agreement between iLight and Color Kinetics, which I have abbreviated CK.

16:13:27 Effective May 31, 2006, iLight entered into a ten year patent license agreement with CK in which CK gave iLight a

worldwide, non-exclusive, non-sublicenseable, royalty-bearing license under certain U.S. and foreign utility patents issued to CK in order for iLight to manufacture and sell licensed products in certain fields. The licensed products included iLight's Plexineon RGB Series. The royalty rate terms were:

And you will see there on the royalty rate:

16:14:09 Competitive products $10 per unit or nine percent of net revenue; and for non-competitive products, 4.0 to 5.0 percent of net revenues.

16:14:19 Under the agreement, the parties were to determine whether each additional product proposed by iLight would be a competitive licensed product or not. ILight agreed to pay CK a royalty rate equal to or greater of $10 per unit or nine percent of net revenues of competitive licensed products.

16:14:39 The royalty rate would be lower for noncompetitive licensed products, which is substantially similar in terms of shape and appearance to that of a Plexineon product.

16:14:50 The royalty rate for licensed Plexineon products would be four percent of net revenues sold within 18 months of the effective date of the agreement, and then it would increase to five percent after that.

16:15:01 My conclusion regarding this particular agreement was that, even though it occurred after the hypothetical negotiation, it was very useful and would be consistent with what I learned about CK's licensing practice in the industry

based on my interview with Mr. Kallmes, who is the licensing director at CK.

16:15:47 Could you pull up TX 32 U, as in uncle.

16:16:00 Okay. Now, Mr. Kallmes was the prior Director of Licensing at CK, Color Kinetics. He is a member of the Licensing Executive Society, as am I. Mr. Kallmes has over ten years of industry experience in intellectual property licensing, management and development. During my interview with Mr. Kallmes, I learned that around September 2005, CK royalty rates ranged from five to 25 percent.

16:16:21 In order to streamline licensing and management of CK's intellectual property portfolio, Mr. Kallmes narrowed the royalty rate range between five and nine percent when negotiating license agreements on behalf of CK and other entities. Mr. Kallmes stated that, based on his industry experience, royalty rates generally ranged from five to nine percent of sales of LED lighting and lighting control technology, such as the technology covered by the iLight patents or the CK/iLight license agreement, depending on, among other issues, the degree of market overlap and competition between the two parties.

16:17:02 Royalty rates tend to be on the high end of the range if the parties compete in the same territory or the same line of business. Mr. Kallmes applied these guidelines when negotiating the license agreement with iLight. Mr. Kallmes

indicated that a key provision of the iLight/CK license agreement was the tiered royalty structure for competitive versus noncompetitive products.

16:17:30 When Mr. Kallmes negotiated a license involving competitive lighting products, he expected the royalty rate to be nine percent, which is the rate concluded for competitive lighting products in the iLight/CK license agreement.

16:17:42 In evaluating this bucket of factors, -- this being the Licensing Characteristics bucket of Georgia-Pacific factors, I also concluded the following. That Fallon had not produced any of the license agreements entered into for the same technology in this case.

16:18:01 And I also concluded that the hypothetical license between iLight and Fallon would have been a nonexclusive U.S.-only license, because Fallon would only require a license for products made, used, offered for sale, or sold within the United States, and iLight would still remain free to sell its own products and to continue to licensing to other companies.

The hypothetical negotiations would have been for the duration of the lives of the iLight patents, which I understand will expire on October 18, 2021, or approximately 17 years after the date of the hypothetical negotiation.

16:18:43 Now we're going to talk about the second Georgia-Pacific bucket of factors. And if you could bring up TX 32 V, please. Okay.

16:18:56 So now this is the second group of buckets. I want to discuss these, because these relate now to the technology and nature and use of the invention.

16:19:20 Could you please turn and pull up DX 32 W. Okay.

16:19:23 Now, through my investigation of the factors in this particular bucket, the technology bucket, I learned that the iLight patents were a significant advance over prior art. I also learned that the prior art was identified in the report of Fallon's technical expert. I also learned about the benefits associated with the patented technology. And that included -- and you will see a list of them:

16:19:49 The effective simulation of neon lighting with even light distribution and comparable brightness;

16:19:55 Lightweight and having superior handleability characteristics;

16:20:00 Rugged and resist breakage;

16:20:02 Environmentally friendly; no neon gas, uses less electricity;

16:20:04 And finally, easy to install.

16:20:13 Could you turn now to pull up TX 32 X.

16:20:16 I also learned, with respect to other LED lighting systems, I observed that either they do not have all of the desired features such as brightness, uniformity, and neon-like appearance, or they allegedly infringe the iLight patents-in-suit.

16:20:32 According to Dr. Roberts, any attempted design around the patents-in-suit to create a noninfringing product with the same characteristics of the infringing products at the time of first infringement would have required time, money and effort, and it would have cost more to manufacture the designed -- redesigned product.

16:20:59 Would you now go to TX 32 Y, please.

16:21:08 Now, this is a chart dealing with the infringer's use of the patents. And I noted that over time iLight's -- excuse me, Fallon's infringing products grew to be more than half of Fallon's sales by 2008. And if you look at the time period from January 2005 through September 2008, that whole time period, the accused products accounted for 42.8, almost 43 percent, of Fallon's total company sales.

16:21:55 Now if you will go to 32 Z, please. That's it? Okay. I can't tell because it's not numbered. Thank you.

16:22:03 So now I want to talk about the third bucket under Georgia-Pacific, which would be commercial success. And I would like you to please pull up TX 32 AA.

16:22:22 Now, this is just highlights of some of the commercial success issues. ILight's Plexineon products won the Product of the Year Award in 2003. ILight's sales grew approximately 930 percent from September 2004 through August 2006. 95 percent or more of iLight's revenues were from the sale of Plexineon.

16:22:45 Anheuser-Busch was one of iLight's customers for custom made sign products before Fallon introduced the accused products. In fact, iLight sold LED Budweiser signs to Anheuser-Busch in 2005. Mr. Cleaver estimated that the gross margin on Plexineon was about 37 percent in 2005 and about 39 percent in 2006.

16:23:14 All of these factors in my view demonstrate that iLight's Plexineon product was a commercial success.

16:23:27 Can you go to TX 32 BB.

16:23:39 This bar chart which I prepared demonstrates that iLight sold approximately $10 million in Plexineon sales from back in 2002 through parts of the year 2008. And if you added up all the red bars, it would be about $10 million.

16:23:57 I now want to turn to Fallon's sales of the accused products and ask you to please pull up TX 32 CC.

16:24:11 As shown in this slide, Fallon has sold approximately 35.4 -- let me just start over, I'm sorry.

16:24:18 According to this chart and my analysis, which is summarized in this chart, Fallon sold approximately $35.4 million of infringing product from January 2005 through April 2009, this month. They generated gross profits on those sales of about $9 million, and their operating profits on those sales were about $2.6 million.

16:24:57 Can you now pull up TX 32 DD.

16:25:00 This is a breakdown showing through September of 2000

-- is this it? Okay. So this just shows some historical sales of Fallon's accused products through September 2008, which is $29.5 million, and then if you expand it through this month, it's about $34.5 million in sales.

16:25:35 Can you pull up TX 32 EE.

16:25:38 One of the factors that is also relevant to consider whether the accused products generate above normal profit for Fallon. In this regard, I have analyzed profits Fallon earned on sales of retail custom-made LED signs compared to the profits generated on selling neon signs and other products, meaning non-accused or non-infringing products.

16:26:03 The results of my analysis are summarized in the table below. The table is not important.

16:26:09 But what the chart here shows is that for the time period we're concerned about, the red bar would be Fallon's accused sales. The green bar -- looks like green -- is Fallon's non-infringing sales. So I tried to compare. The left side of this chart is the gross profit. And you can see that the gross profit is 26 percent of the accused products, and during same time period, the non-accused or non-infringing Fallon products only generated profits of 10.7 percent.

That bracket in the yellow highlighting shows that the premium on the infringing products, they actually -- Fallon enjoyed a 15 percent profit premium. In other words, they were a lot more profitable with the accused products than

their other non-accused products.

16:27:00 The same thing when looking at operating profits. Operating profits were 8.1 percent, the red bar there on the right, and they actually lost money on their non-accused products of minus 6.2 percent. So you have a profit premium there of 14.3 percent, showing that these were very profitable products, these being the accused products, for Fallon.

16:27:27 Now I'm going to turn to the fourth bucket, which is TX 32 GG, please.

16:27:38 Now, this is the -- talking about the relative position of the companies and marketing and competitive position of the parties. In valuing this factor, I noted that iLight preserves its patent monopoly by not voluntarily giving competitors access to its patented technology in markets where iLight operates. Both --

16:27:58 MR. PRICE: Mr. Bratic, I'll stop you. I think we're supposed to be moving to another exhibit. I believe we are now at TX 32 HH?

16:28:07 A. Oh, I'm sorry.

16:28:08 Q. No, that's all right. I understand.

16:28:11 A. We'll put that up, then the next one. Yes. Okay.

16:28:18 So this is a discussion of the competition factors. And iLight preserves its patent monopoly by not giving competitors access to its patented technology in the markets

where iLight operates. Both iLight and Fallon targeted the LED signage and POP, point of purchase, market. ILight would have considered Fallon to be a direct competitor in the signage market.

16:28:50 As I said earlier, one of -- most of Fallon's accused sales were, in fact, to Anheuser-Busch and Sam's Club. And I investigated the competition between iLight and Fallon for sales to Anheuser-Busch and Sam's Clubs.

16:29:13 So can you put up 32 II, please.

16:29:17 Around 2004, Sam's Club stopped purchasing oval neon signs from Fallon while they test marketed the IDG/iLight neon Open signs. Fallon developed Xenon LED Open signs to avoid losing Sam's Club business. Sam's Club began selling Fallon LED Open signs in early 2005.

16:29:39 And that's our date of first infringement.

16:29:44 And Fallon might have lost Sam's Club's business without the LED Open sign product. In 2006, iLight approached Sam's Club that Fallon had already obtained Sam's Club business by selling accused products. Sam's Club declined to consider iLight products at that point, as a result of the fact that Fallon was already selling products.

16:30:04 MR. LIPSHIE: Your Honor, same objection.

16:30:06 MR. PRICE: Let's move. You need to -- in this court, I know it's a foreign concept for you, --

16:30:11 THE COURT: Excuse me, ladies and gentlemen. We're

going to excuse you just for a few minutes. Please don't discuss the evidence amongst yourselves or with anyone else until you receive all of the evidence, the argument of counsel, and the charge of the Court.

16:30:38 (Jury out.)

16:30:51 THE COURT: The reason for the rule is that if you say something that's not in the report, the other side says, I never heard of that before, I never got a chance to do discovery on that, I am prejudiced, this is altogether new.

Now, if you all -- you all had a chance to supplement your report. You could add anything to your report. There is a Sixth Circuit case that says the expert can -- will be allowed to modify what the report is, but I require you all to serve your modification on each other so we don't get into any surprises of any kind.

16:31:32 Now, I take it that this supplement that he has, everybody has been given, so that with the supplement, I don't know that we should be carrying on for any more, otherwise, we're going to run into the problems we're having now.

16:31:45 MR. PRICE: Absolutely, Your Honor. We agree.

16:31:47 THE COURT: I mean, that was part of allowing the supplement in.

16:31:49 MR. PRICE: Absolutely, Your Honor.

16:31:53 THE COURT: But if he is going to deviate from that, then we're going to have a real problem. Have a seat. You

all have a seat.

16:32:01 MR. PRICE: You are absolutely right, Your Honor.

16:32:02 THE COURT: Do you understand, sir?

16:32:33 THE WITNESS: Yes, I do.

16:32:33 THE COURT: Bring the jury in, Mr. Marshal.

16:32:37 MR. PRICE: You are at the bottom of Page 19?

16:32:37 THE WITNESS: Yes.

16:32:40 THE COURT: How many more pages are there?

16:32:41 MR. PRICE: We're in the direct part, Your Honor. We're on Page 19. It ends at Page 23.

16:32:46 THE COURT: Total.

16:32:53 MR. PRICE: The next group will be seven -- no, I'm sorry, 15 pages, Your Honor. So we have roughly 18 pages, something like that.

16:33:05 THE COURT: You can be seated.

16:33:05 (Jury in.)

16:33:09 THE COURT: You can be seated. All right. Let's go.

16:33:14 THE WITNESS: Can you tell me which exhibit number that is.

16:33:15 BY MR. PRICE:

16:33:21 Q. You are now at Exhibit TX 32 JJ, the bottom of Page 32.

16:33:29 A. That's the new one we're putting up.

16:33:34 Q. Oh, wait a minute. No, that's fine. Yes.

16:33:35 A. I'm sorry.

16:33:37 Q. We're fine.

16:33:40 A. Right. This chart says, Fallon gained business from Anheuser-Busch with accused products. From the testimony of Timothy Fallon, who is the national account manager of Fallon, Anheuser-Busch was desperate to replace the major brand purchases with LEDs as exposed to neons just because of the sort of stigma some of their wholesalers would have with neon.

16:34:07 There has been a push at Anheuser-Busch to replace neons with other technologies, LEDs, backlit signs, stuff like that. It has been going on since the early 1990s.

16:34:48 If you can go to TX 32 LL.

16:34:52 This is an e-mail from another document I reviewed, an e-mail from Tim Demmond, vice-president of sales at Fallon December 3, 2005. Tom G. presented the Bud Light Prestige VI. Even though the unit was flickering, they like the design. However, they are leaning towards Version 2. AB said they are going to order several thousand units of this product and they absolutely have to have Version 2 in their hands next week. We either deliver or they buy from iLight. Our fate is in our hands.

16:35:34 Can you please go to 32 NN.

16:35:38 Before Fallon introduced accused products into the custom-made signage market, Anheuser-Busch was one of iLight's customers for custom made sign products and, according to

iLight's business plan updated 2005, iLight sold 1,250 LED Budweiser signs to Anheuser-Busch for $226,000 at an average price of $180 per unit.

16:36:05 In 2006, Fallon competed with iLight and other companies to sell custom made signs to Anheuser-Busch. Fallon successfully gained Anheuser-Busch as Fallon's only and biggest customer for custom-made LED sign products by selling their accused products at an average price of $104.30 per unit. After winning the Anheuser-Busch business in 2006, the average price of accused products sold to Anheuser-Busch increased significantly to 169.90 per unit in 2007 and $155.90 in the first nine months of 2008. Fallon would not have gained business from Anheuser-Busch without offering the accused products.

16:36:53 Based on the above, iLight would have considered Fallon to be a direct competitor in the signage market. Given that iLight and Fallon were direct competitors, iLight would have been concerned that Fallon would undercut pricing as it attempted to gain market share and compete with iLight, which is what occurred with respect to the Anheuser-Busch account.

16:37:11 As a result, iLight would have recognized that it could be exposed to potential price erosion on sales of its products in competition with Fallon.

16:37:29 Now if you could please go to Exhibit TX 32-00.

16:37:33 I prepared this slide to show that all of Fallon's

accused sales -- almost all of Fallon's accused sales were to AB, Anheuser-Busch, and Sam's Club. And that is just showing how they stack up by year.

16:37:51 The fifth bucket I'm going to turn to, which is the Georgia-Pacific bucket, if you will pull up TX 32 PP.

16:38:09 This bucket is headed, Experts and Negotiation.

16:38:18 Would you please pull up TX 32 QQ.

16:38:22 Under this factor related to experts, I interviewed Paul Kallmes, who is our Director of Licensing at Color

16:38:31 Kinetics; I interviewed and relied on Dr. Victor Roberts, iLight's technical expert; and in addition, I considered defendants' expert reports.

16:38:39 I would now like to summarize the key points that would have been considered at the hypothetical negotiation.

16:38:53 Could you bring up TX 32 RR.

16:38:56 This chart is says Key Points in the Hypothetical Negotiation.

16:39:01 Both Plexineon and Fallon's accused products have been commercially successful and are profitable.

16:39:10 Terms of the CK/iLight patent license agreement -- a royalty of the greater of $10 or nine percent of net revenues on sales of competitive licensed products. I also considered Mr. Kallmes, who indicated that royalty rates would generally range from five to nine percent of sales of LED lighting and lighting control technology.

16:39:32 The royalty rates tend to be on the upper end of the range of royalties if the parties compete in the same territory and the same line of business. ILight has implemented a de facto policy of preserving its patent monopoly by not giving others, especially competing firms, access to its patented technology in the markets where iLight operates.

16:40:03 Could you bring up TX 32 SS.

16:40:07 ILight would have considered Fallon to be a direct competitor in the signage market, iLight would have been concerned that Fallon would undercut pricing as it attempted to gain market share and compete with iLight, which is what occurred with respect to the Anheuser-Busch account.

16:40:24 The patents-in-suit represent a significant advance over old modes or devices. Any attempted design around at the time of first infringement would have required time, money and effort, and the resulting product would have been more expensive to manufacture.

16:40:38 There is a significant profit premium on sales of the accused products by Fallon. The average gross profit premium was 15.3 percent, and the average operating profit premium was 14.3 percent.

16:40:53 Would you bring up TX 32 SS.

16:40:55 Q. Is this TT?

16:41:00 A. I'm sorry, TT, yes. We've just done SS.

16:41:03 I prepared this chart to illustrate a reasonableness check of my damages calculation. This chart shows that of the $35.4 million of infringing sales made by Fallon estimated through April 2009, I am recommending that Fallon only paid $2.5 million, or seven percent of its total accused sales as a royalty to iLight.

16:41:29 I would like to summarize by walking through my calculation of reasonable royalty damages.

16:41:38 If you would please bring up TX 32 UU.

16:41:41 Reasonable royalties are determined by multiplying the reasonable royalty rate by the alleged infringing sales or royalty base to get to reasonable royalty. In this case, multiplying the royalty rate of no less than seven percent times the royalty base.

16:42:01 Could you bring up 32 VV. Actually, don't bring that one up. That's one we need to do on the Elmo. Focus that for us, please. Good enough.

16:42:37 This is the formula of royalty rate times royalty base, gets you a reasonable royalty. Seven percent times the $35.4 million of estimated -- actual and estimated sales through April of 2009 gives you a royalty -- I mean, sales of $35.4 million.

16:42:55 Q. You've got to read from the paper.

16:42:57 A. Oh, I'm sorry. Fallon produced sales data of its accused products through September 2008. I estimated

Fallon's accused product sales for the period from October of 2008 through April 2009, using a monthly average of Fallon's actual sales in 2008.

16:43:10 Based on my calculation, I determined that Fallon sold approximately $35.4 million of accused products through April 2009, which, when multiplied by the reasonable royalty rate of seven percent, results in reasonable royalty damages owed to iLight of $2.5 million rate, excluding prejudgment interest.

16:43:36 MR. PRICE: Your Honor, would you like to proceed to the next section?

16:43:37 THE COURT: Ladies and gentlemen of the jury, we're going to take a break, call it a day. Please don't discuss the case amongst yourselves or anyone else until you receive all of the evidence, the argument of counsel, and the charge of the Court. If you will come back shortly before 9:00, we'll try and get started promptly.

16:44:35 (Jury out.)

16:44:39 THE COURT: I take it you are at the rebuttal part?

16:44:40 MR. PRICE: Yes, Your Honor.

16:44:44 THE COURT: I thought it would be better to hear that -- the way he was going, we weren't going to make it by 5:00, and I was concerned about the juror being -- having worries about when we were going to get out of here. We'll start -- if you all will be here shortly before 9:00.

16:45:02 At the conclusion of this witness, the plaintiffs can

introduce those exhibits that they did not previously move into admission but have been referred to by witnesses.

16:45:12 MR. PRICE: Your Honor, one last thing. This is a scheduling suggestion that we discussed amongst ourselves. I know we have a juror who may have a conflict next Tuesday. Your Honor indicated that he may want to hear --

16:45:26 THE COURT: I thought it was next Thursday, wasn't it, the banker?

16:45:28 MR. PRICE: Oh, I'm sorry. I thought it was Tuesday.

16:45:29 THE COURT: It's next Thursday. Hold on. I've got a chart here.

16:45:43 THE WITNESS: May I step down?

16:45:51 THE COURT: You may step down.

16:45:54 THE COURT: It's next Tuesday. You're right. Tuesday.

16:45:56 MR. PRICE: The suggestion we had, Your Honor, is, you had indicated that you may be interested in hearing away from the jury certain evidence going to their defense of inequitable conduct. If Your Honor is still so inclined, we were thinking that day, if you would be inclined to do so --

16:46:18 THE COURT: We'll have a discussion with the juror tomorrow how much time he believes he will need on Tuesday morning, or on Tuesday, whichever it is, and then we'll plan accordingly.

16:46:28 MR. PRICE: That will be great.

16:46:32 THE COURT: The only reference I heard to inequitable conduct was the fact that the litigation was not disclosed to the Patent Office. If that's -- is that an undisputed fact?

16:46:44 MR. PRICE: That's my understanding in short, and we did file a motion in limine to exclude it entirely, Your Honor.

16:46:49 MR. KITTREDGE: There are disputed aspects of it, Your Honor.

16:46:53 THE COURT: What are the disputed aspects of it?

16:46:54 MR. KITTREDGE: The disputed aspects go directly to the defense that a reasonable examiner would want the information and use it in examining the patents, and, therefore, the motion is immaterial. There is a dispute as to whether or not that's material information that was not disclosed.

16:47:11 THE COURT: Well, what is the material information that was not disclosed?

16:47:14 MR. KITTREDGE: The material information that was not disclosed, Your Honor, is the fact of this lawsuit and the fact that they were accusing that little piece of plastic of being a rod-like waveguide when they told the Patent Office previously that that horseshoe-shaped piece of the Slayden Patent -- this is very, very similar. We have expert to explain why that's material. They have an expert who is going to say it's not. That's material factual information that

wasn't disclosed.

16:47:46 It's also not in dispute that there was a duty to disclose this information, but it wasn't. And what a reasonable examiner would want to do with it is the dispute. And we've got witnesses ready to testify about it.

16:47:59 THE COURT: Well, if it's an equitable defense, was the earlier characterization of it, perhaps we can hear that testimony while the guy is out, or the juror is out.

16:48:10 MR. PRICE: Your Honor, if we do find that out tomorrow, we can so advise these other people so they can make those arrangements.

16:48:18 THE COURT: Well, how many witnesses are we talking about?

16:48:20 MR. PRICE: Three, Your Honor.

16:48:21 THE COURT: Are they all experts?

16:48:26 MR. PRICE: No, two and the patent counsel. The gentleman that's accused of not disclosing.

16:48:33 MR. VEZEAU: Your Honor, there are two elements to their defense, both of which they must prove by clear and convincing evidence. The materiality is just one. And we have addressed this in our motion with the Court. The other issue is intent. Regardless of materiality, they must have clear and convincing evidence of intent, and they have none, zero, in the record.

16:48:53 THE COURT: That goes to the merits.

16:48:55 1 MR. VEZEAU: Okay. Fine, Your Honor.

16:49:00 2 THE COURT: We'll be in recess.

16:49:00 3 * * * * *

16:49:00 4

16:49:00 5

16:49:00 6

16:49:00 7

16:49:00 8

16:49:00 9

16:49:00 10

16:49:00 11

16:49:00 12

16:49:00 13

16:49:00 14

16:49:00 15

16:49:00 16

16:49:00 17

16:49:00 18

16:49:00 19

16:49:00 20

16:49:00 21

16:49:00 22

16:49:00 23

16:49:00 24

16:49:00 25

16:49:00 1 REPORTER'S CERTIFICATE

16:49:00 2

16:49:00 3 I, Peggy G. Turner, Official Court Reporter for
16:49:00 4 the United States District Court for the Middle
16:49:00 5 District of Tennessee, with offices at Nashville, do
16:49:00 6 hereby certify:
16:49:00 7 That I reported on the Stenograph machine the
16:49:00 8 proceedings held in open court on April 23, 2009, in the
9 matter of ILIGHT V. FALLON, Case No. 2:06-0025; that said
10 proceedings in connection with the hearing were reduced to
11 typewritten form by me; and that the foregoing transcript,
12 Pages 137 through 471, is a true and accurate record of said
13 proceedings.
16:49:00 14 This the 11th day of May, 2009.

16:49:00 15

16:49:00 16

16:49:00 17

16:49:00 18 _____
S/Peggy G. Turner, RPR
16:49:00 19 Official Court Reporter

20

16:49:00 21

16:49:00 22

16:49:00 23

16:49:00 24

16:49:00 25